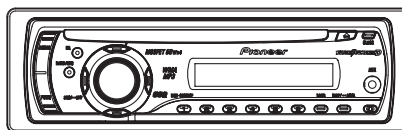


Service Manual



DEH-2950MP/XN/ES

ORDER NO.
CRT3820

CD RECEIVER

DEH-2950MP

/XN/ES

DEH-2950MP

/XN/ES1

DEH-2990MP

/XN/ID

This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech.Module	Remarks
CX-3195	CRT3815	S10.5COMP2	CD Mech. Module : Circuit Descriptions, Mech. Descriptions, Disassembly



For details, refer to "Important Check Points for Good Servicing".

SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

● **Safety Precautions for those who Service this Unit.**

- When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

Caution:

1. During repair or tests, minimum distance of 13 cm from the focus lens must be kept.
2. During repair or tests, do not view laser beam for 10 seconds or longer.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replaced only with the same or equivalent type recommended by the manufacture.
Discord used batteries according to the manufacture's instructions.

● **Service Precaution**



1. You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.
2. Before disassembling the unit, be sure to turn off the power. Unplugging and plugging the connectors during power-on mode may damage the ICs inside the unit.
3. To protect the pickup unit from electrostatic discharge during servicing, take an appropriate treatment (shorting-solder) by referring to "the DISASSEMBLY".
4. After replacing the pickup unit, be sure to check the grating.
5. Be careful in handling ICs. Some ICs such as MOS type are so fragile that they can be damaged by electrostatic induction.



[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety



Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

- ① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

- ② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

- ③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

- ④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

- ⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

- ⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

- ⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

- ⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

- ⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

- ⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments



To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts



Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning



For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws



To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

CONTENTS

	SAFETY INFORMATION	2
	1. SPECIFICATIONS	5
A	2. EXPLODED VIEWS AND PARTS LIST	8
	2.1 PACKING	8
	2.2 EXTERIOR.....	10
	2.3 CD MECHANISM MODULE.....	12
	3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM	14
	3.1 BLOCK DIAGRAM	14
	3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE).....	16
	3.3 KEYBOARD UNIT	22
	3.4 CD MECHANISM MODULE(GUIDE PAGE)	24
	4. PCB CONNECTION DIAGRAM	32
	4.1 TUNER AMP UNIT.....	32
	4.2 KEYBOARD UNIT	36
B	4.3 CD CORE UNIT(S10.5COMP2).....	38
	5. ELECTRICAL PARTS LIST	40
	6. ADJUSTMENT	44
	6.1 CD ADJUSTMENT.....	44
	6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT	46
	6.3 ERROR MODE	48
	6.4 SYSTEM MICROCOMPUTER TEST PROGRAM	49
	7. GENERAL INFORMATION	50
	7.1 DIAGNOSIS	50
	7.1.1 DISASSEMBLY	50
	7.1.2 CONNECTOR FUNCTION DESCRIPTION.....	53
	7.2 PARTS.....	54
C	7.2.1 IC	54
	7.2.2 DISPLAY	64
	7.3 OPERATIONAL FLOW CHART	65
	8. OPERATIONS	66

D

E

F

1. SPECIFICATIONS

● DEH-2950MP/XN/ES, DEH-2950MP/XN/ES1

General

Rated power source	14.4 V DC
	(allowable voltage range: 12.0 V to 14.4 V DC)
Grounding system	Negative type
Max. current consumption	10.0 A
Backup current	2 mA or less
Dimensions (W × H × D):	
DIN	
Chassis	178 × 50 × 162 mm
Nose	188 × 58 × 14 mm
D	
Chassis	178 × 50 × 162 mm
Nose	170 × 47 × 14 mm
Weight	1.3 kg

Audio

Continuous power output ...	22 W × 4 (50 Hz to 15 000 Hz, 5% THD, 4 Ω load, both channels driven)
Maximum power output	50 W × 4
Load impedance	4 Ω (4 Ω to 8 Ω allowable)
Preout max output level/output impedance	2.2 V/1 kΩ
Bass/Mid/Treble:	
Bass	
Frequency	100 Hz
Gain	±13dB
Mid	
Frequency	1 kHz
Gain	±12 dB
Treble	
Frequency	10 kHz
Gain	±12 dB
Loudness contour:	
Low	+7 dB (100 Hz), +4 dB (10 kHz)
High	+10 dB (100 Hz), +6.5 dB (10 kHz) (volume: -30 dB)

CD player

System	Compact disc audio system
Usable discs	Compact disc
Signal format:	
Sampling frequency	44.1 kHz
Number of quantization bits	16; linear
Frequency characteristics ...	5 Hz to 20 000 Hz (±1 dB)
Signal-to-noise ratio	94 dB (1 kHz) (IEC-A network)
Dynamic range	92 dB (1 kHz)

Number of channels	2 (stereo)
WMA decoding format	Ver. 7, 7.1, 8, 9, 10 (2ch audio) (Windows Media Player)
MP3 decoding format	MPEG-1 & 2 Audio Layer 3
WAV signal format	Linear PCM & MS ADPCM

FM tuner

Frequency range	87.5 MHz to 108.0 MHz
Usable sensitivity	8 dBf (0.7 μV/75 Ω, mono, S/N: 30 dB)
Signal-to-noise ratio	75 dB (IEC-A network)
Distortion	0.3 % (at 65 dBf, 1 kHz, stereo) 0.1 % (at 65 dBf, 1 kHz, mono)
Frequency response	30 Hz to 15 000 Hz (±3 dB)
Stereo separation	45 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range	531 kHz to 1 602 kHz (9 kHz) 530 kHz to 1 640 kHz (10 kHz)
Usable sensitivity	18 μV (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IEC-A network)

Infrared remote control

Wavelength	940 nm ±50 nm
Output	typ; 12 mw/sr per Infrared LED



Note

Specifications and the design are subject to possible modifications without notice due to improvements. ■

DEH-2990MP/XN/ID

A General

Rated power source 14.4 V DC
(allowable voltage range:
12.0 V to 14.4 V DC)

Grounding system Negative type

Max. current consumption
..... 10.0 A

Backup current 2 mA or less

Dimensions (W × H × D):

DIN

Chassis 178 × 50 × 162 mm

Nose 188 × 58 × 14 mm

D

Chassis 178 × 50 × 162 mm

Nose 170 × 47 × 14 mm

Weight 1.3 kg

B Audio

Continuous power output ... 22 W × 4 (50 Hz to 15 000
Hz, 5% THD, 4 Ω load, both
channels driven)

Maximum power output 50 W × 4

Load impedance 4 Ω (4 Ω to 8 Ω allowable)

Preout max output level/output impedance
..... 2.2 V/1 kΩ

Bass/Mid/Treble:

Bass

Frequency 100 Hz

Gain ±13dB

Mid

Frequency 1 kHz

Gain ±12 dB

Treble

Frequency 10 kHz

Gain ±12 dB

Loudness contour:

Low +7 dB (100 Hz), +4 dB (10
kHz)

High +10 dB (100 Hz), +6.5 dB
(10 kHz)
(volume: -30 dB)

CD player

System Compact disc audio system

Usable discs Compact disc

Signal format:

Sampling frequency 44.1 kHz

Number of quantization bits

..... 16; linear

Frequency characteristics ... 5 Hz to 20 000 Hz (±1 dB)

Signal-to-noise ratio 94 dB (1 kHz) (IEC-A net-
work)

Dynamic range 92 dB (1 kHz)

Number of channels 2 (stereo)

WMA decoding format Ver. 7, 7.1, 8, 9, 10 (2ch
audio)
(Windows Media Player)

MP3 decoding format MPEG-1 & 2 Audio Layer 3

WAV signal format Linear PCM & MS ADPCM

FM tuner

Frequency range 87.5 MHz to 108.0 MHz

Usable sensitivity 8 dBf (0.7 μV/75 Ω, mono,
S/N: 30 dB)

Signal-to-noise ratio 75 dB (IEC-A network)

Distortion 0.3 % (at 65 dBf, 1 kHz,
stereo)
0.1 % (at 65 dBf, 1 kHz,
mono)

Frequency response 30 Hz to 15 000 Hz (±3 dB)

Stereo separation 45 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range 531 kHz to 1 602 kHz (9 kHz)

530 kHz to 1 640 kHz (10
kHz)

Usable sensitivity 18 μV (S/N: 20 dB)

Signal-to-noise ratio 65 dB (IEC-A network)



Note

Specifications and the design are subject to pos-
sible modifications without notice due to im-
provements. ■

■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

DEH-2950MP/XN/ES

■

7

■

8

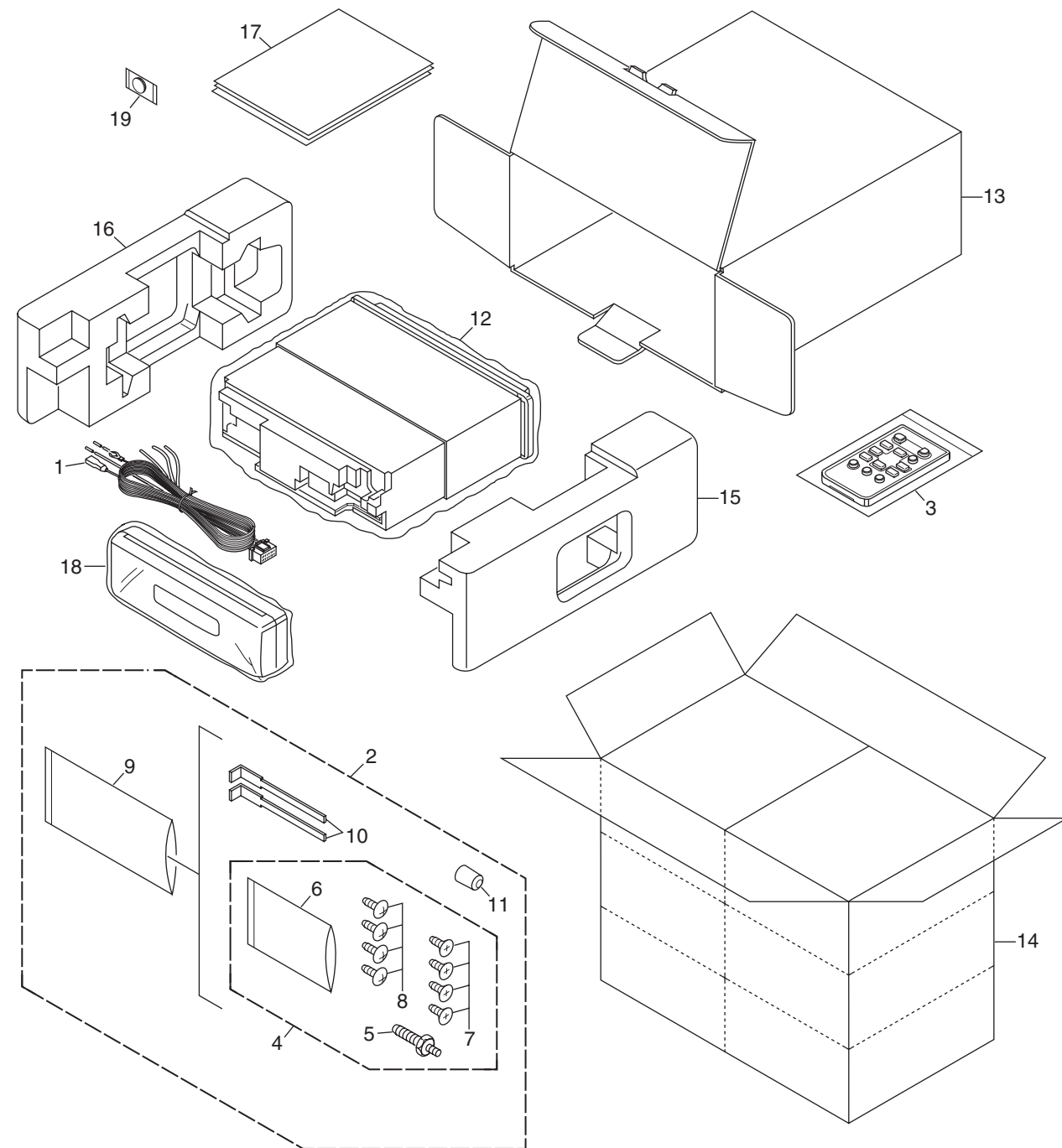
7

■

2. EXPLODED VIEWS AND PARTS LIST

NOTES : • Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.
 • The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 • Screw adjacent to ▽ mark on the product are used for disassembly.
 • For the applying amount of lubricants or glue, follow the instructions in this manual.
 (In the case of no amount instructions, apply as you think it appropriate.)

2.1 PACKING



(1) PACKING SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDP1017	13	Carton	See contrast table(2)
2	Accessory Assy	CEA6708	14	Contain Box	See contrast table(2)
3	Remote Control Assy	CXC5719	15	Protector	CHP3279
4	Screw Assy	CEA3849			
5	Screw	CBA1650	16	Protector	CHP3280
			17-1	Installation Manual	See contrast table(2)
*	6 Polyethylene Bag	CEG-127	17-2	Owner's Manual	See contrast table(2)
7	Screw	CRZ50P090FTC	17-3	Owner's Manual	See contrast table(2)
8	Screw	TRZ50P080FTC	17-4	Caution Card	CRP1310
9	Polyethylene Bag	CEG1160			
10	Handle	CND3707	*	17-5 Warranty Card	See contrast table(2)
			*	17-6 Service Network	See contrast table(2)
11	Bush	CNV3930	18	Case Assy	CXB3520
12	Polyethylene Bag	CEG1373	*	19 Battery	CEX1065

(2) CONTRAST TABLE

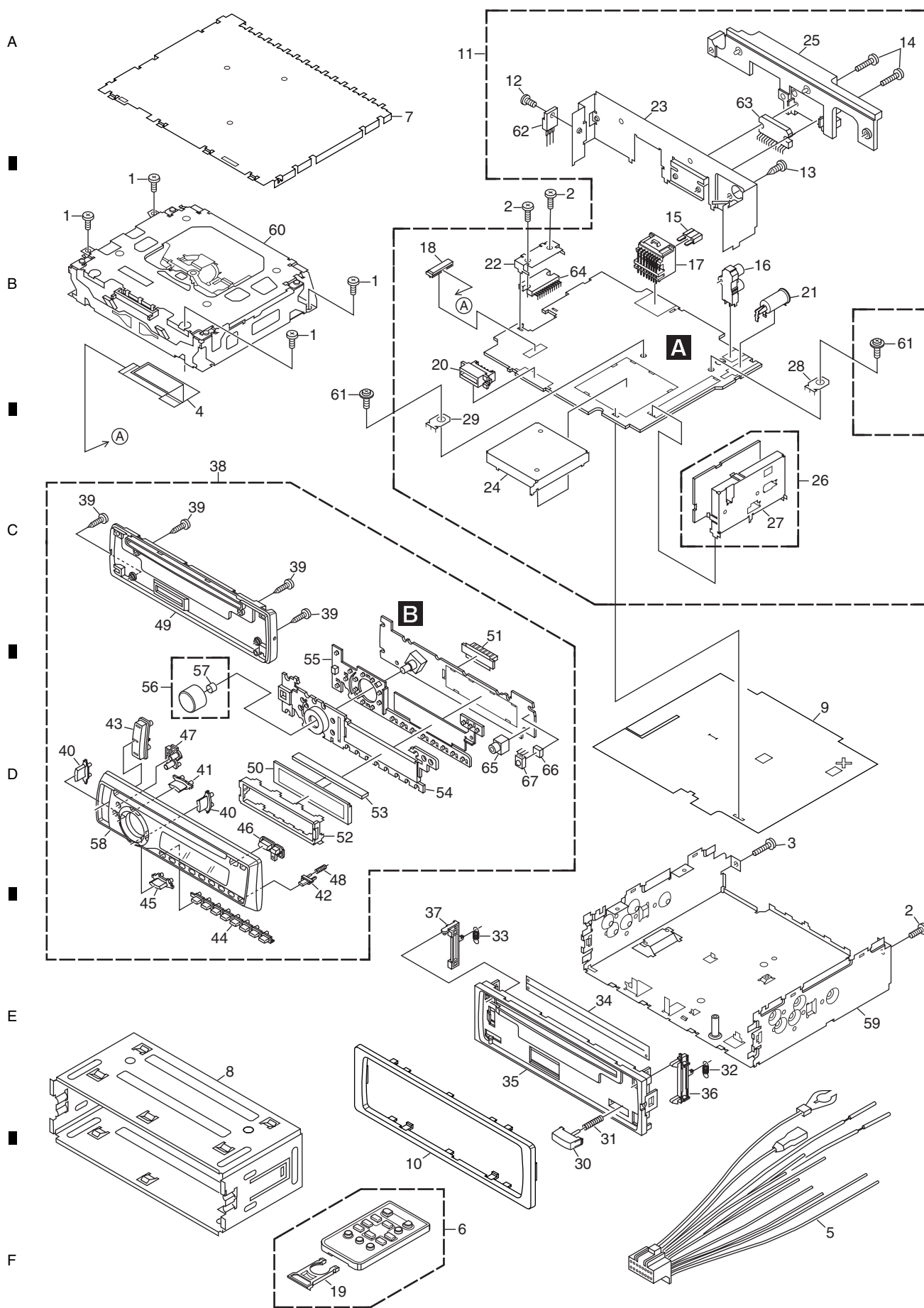
DEH-2950MP/XN/ES, DEH-2950MP/XN/ES1 and DEH-2990MP/XN/ID are constructed the same except for the following:

Mark	No.	Description	DEH-2950MP/XN/ES	DEH-2950MP/XN/ES1	DEH-2990MP/XN/ID
	13	Carton	CHG5984	CHG6048	CHG5985
	14	Contain Box	CHL5984	CHL6048	CHL5985
	17-1	Installation Manual	CRD4139	CRD4139	Not used
	17-2	Owner's Manual	CRD4138	CRD4138	CRB2288
	17-3	Owner's Manual	CRD4140	CRD4140	Not used
*	17-5	Warranty Card	Not used	Not used	CRY1250
*	17-6	Service Network	Not used	Not used	CRY1251

Owner's Manual,Installation Manual

Part No.	Language
CRD4138	English, Spanish, Portuguese(B)
CRD4140	Traditional Chinese, Arabic
CRD4139	English, Spanish, Portuguese(B), Traditional Chinese, Arabic
CRB2288	English

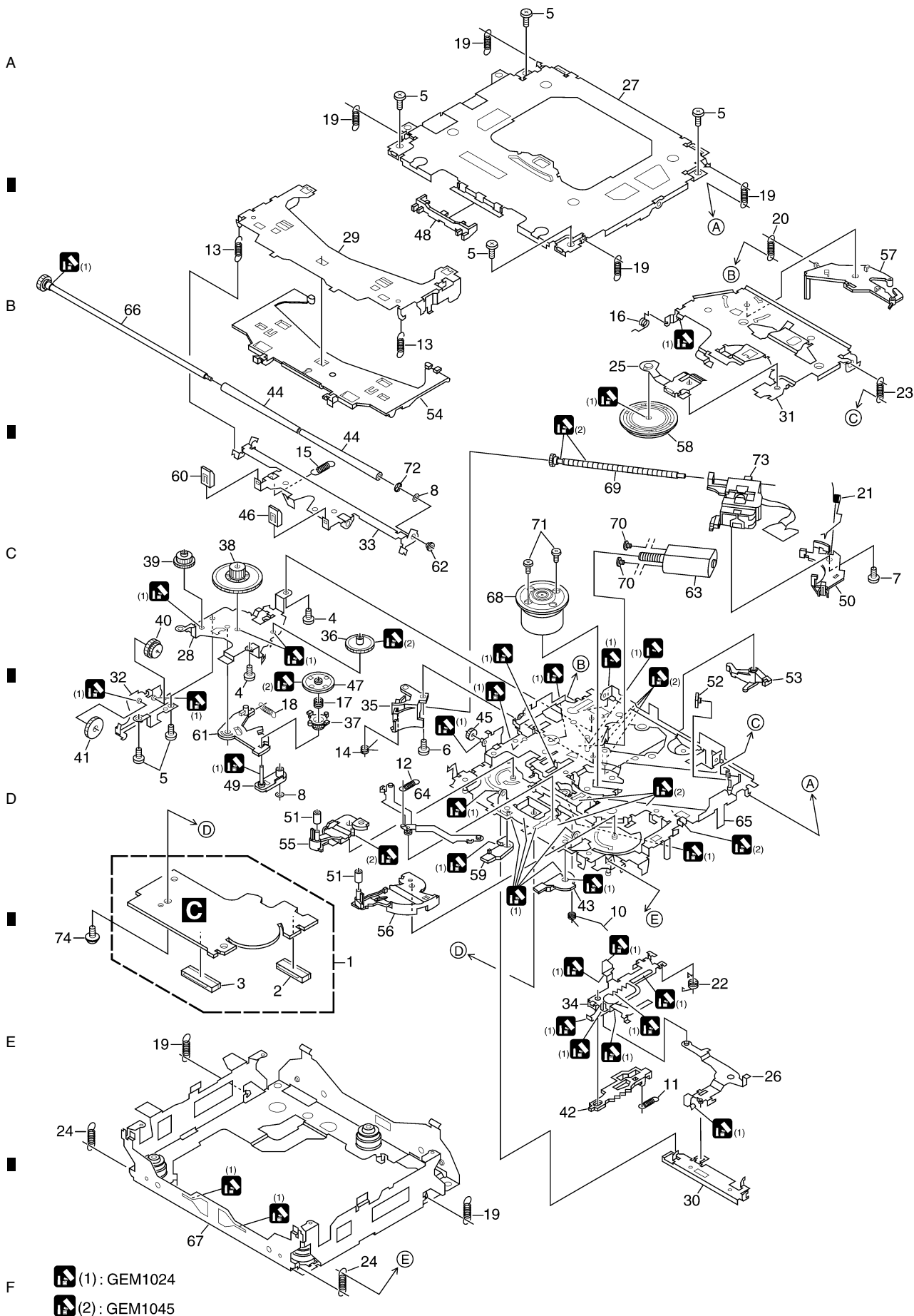
2.2 EXTERIOR



EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1	Screw	BSZ26P060FTC	49	Cover	CNS8758	
2	Screw	BSZ26P100FTC	50	LCD	CAW1930	A
3	Screw	BSZ26P180FTC				
4	Cable	CDE8336	51	Connector(CN1801)	CKS5663	
5	Cord Assy	CDP1017	52	Holder	CND3646	
			53	Connector	CNV9306	
6	Remote Control Assy	CXC5719	54	Lighting Conductor	CNV9308	
7	Case	CNB2793	55	Rubber	CNV9310	
8	Holder	CND3598				
9	Insulator	CNN1385	56	Knob Unit(SOURCE, VOLUME)	CXC7055	
10	Panel	CNS8762	57	Spring	CBL1761	
			58	Grille Unit(2950MP)	CXC7378	
11	Tuner Amp Unit	CWN2037		Grille Unit(2990MP)	CXC7379	B
12	Screw	BSZ26P060FTC	59	Chassis Unit	CXC7391	
13	Screw	BPZ26P080FTC	60	CD Mechanism Module(S10.5)	CXK5760	
14	Screw	BSZ26P160FTC				
⚠ 15	Fuse(10 A)	CEK1208	61	Screw	ISS26P055FTC	
			62	Transistor(Q991)	2SD2396	
16	Pin Jack(CN351)	CKB1059	63	IC(IC301)	PAL007C	
17	Plug(CN901)	CKM1376	64	IC(IC911)	BA4918-V12	
18	Connector(CN651)	CKS3829	65	Jack(CN1802)	CKN1047	
19	Cover	CNS7068				
20	Connector(CN831)	CKS5664	66	Cushion	YNM5029	
			67	IC(IC1802)	GP1UX51RK	C
21	Antenna Jack(CN401)	CKX1056				
22	Holder	CND3545				
23	Holder	CND3754				
24	Holder	CND3706				
25	Heat Sink	CNR1668				
26	FM/AM Tuner Unit	CWE2025				
27	Holder	CND3466				
28	Terminal(CN402)	VNF1084				
29	Terminal(CN601)	VNF1084				
30	Button(DETACH)	CAC4836				D
31	Spring	CBH2367				
32	Spring	CBH2961				
33	Spring	CBH2962				
34	Cover	CNN1665				
35	Panel	CNS8760				
36	Arm	CNV9311				
37	Arm	CNV9312				
38	Detach Grille Assy(2950MP)	CXC7309				E
	Detach Grille Assy(2990MP)	CXC7314				
39	Screw	BPZ20P100FTC				
40	Button(<, >)	CAC9867				
41	Button(UP)	CAC9868				
42	Button(Detach)	CAC9941				
43	Button(AUDIO, FUNC)	CAC9942				
44	Button(1-6)	CAC9866				
45	Button(DOWN)	CAC9945				
46	Button(EJECT, CLOCK)	CAC9949				F
47	Button(EQ, BAND)	CAC9950				
48	Spring	CBH2210				

2.3 CD MECHANISM MODULE



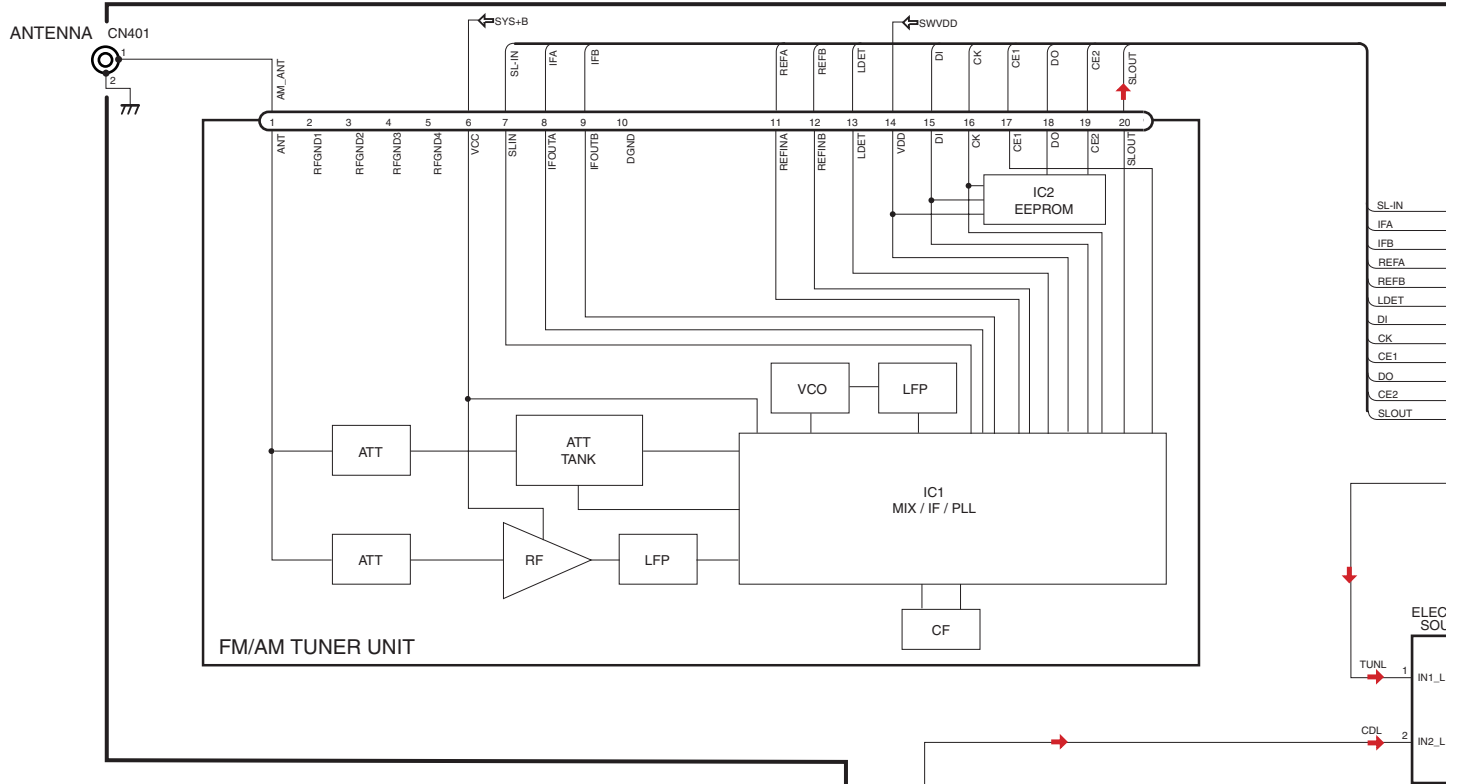
CD MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1	CD Core Unit(S10.5COMP2)	CWX3350	50	Rack	CNV8342	
2	Connector(CN101)	CKS4182				A
3	Connector(CN701)	CKS4808	51	Roller	CNV8343	
4	Screw	BMZ20P025FTC	52	Holder	CNV8344	
5	Screw	BSZ20P040FTC	53	Arm	CNV8345	
			54	Guide	CNV8347	
6	Screw(M2 x 3)	CBA1511	55	Arm	CNV8348	
7	Screw(M2 x 4)	CBA1835				
8	Washer	CBF1038	56	Arm	CNV8349	
9	*****		57	Arm	CNV8350	
10	Spring	CBH2609	58	Clamper	CNV8365	
			59	Arm	CNV8386	
11	Spring	CBH2612	60	Guide	CNV8396	B
12	Spring	CBH2614				
13	Spring	CBH2616	61	Arm	CNV8413	
14	Spring	CBH2617	62	Collar	CNV8938	
15	Spring	CBH2620	63	Motor Unit(M2)	CXC4026	
			64	Arm Unit	CXC4027	
16	Spring	CBH2855	65	Chassis Unit	CXC4028	
17	Spring	CBH2937				
18	Spring	CBH2735	66	Gear Unit	CXC4029	
19	Spring	CBH2854	67	Frame Unit	CXC4031	
20	Spring	CBH2642	68	Motor Unit(M1)	CXC7134	
			69	Screw Unit	CXC6359	C
21	Spring	CBH2856	70	Screw	JFZ20P020FTC	
22	Spring	CBH2857				
23	Spring	CBH2860	71	Screw	JGZ17P022FTC	
24	Spring	CBH2861	72	Washer	YE20FTC	
25	Spring	CBL1686	73	Pickup Unit(P10.5)(Service)	CXX1942	
			74	Screw	IMS26P030FTC	
26	Arm	CND1909				
27	Frame	CND2582				
28	Bracket	CND2583				
29	Arm	CND2584				
30	Lever	CND2585				D
31	Arm	CND2586				
32	Bracket	CND2587				
33	Arm	CND2588				
34	Lever	CND2589				
35	Holder	CNV7201				
36	Gear	CNV7207				
37	Gear	CNV7208				
38	Gear	CNV7209				
39	Gear	CNV7210				E
40	Gear	CNV7211				
41	Gear	CNV7212				
42	Rack	CNV7214				
43	Arm	CNV7216				
44	Roller	CNV7218				
45	Gear	CNV7219				
46	Guide	CNV7361				
47	Gear	CNV7595				F
48	Guide	CNV7799				
49	Arm	CNV7805				

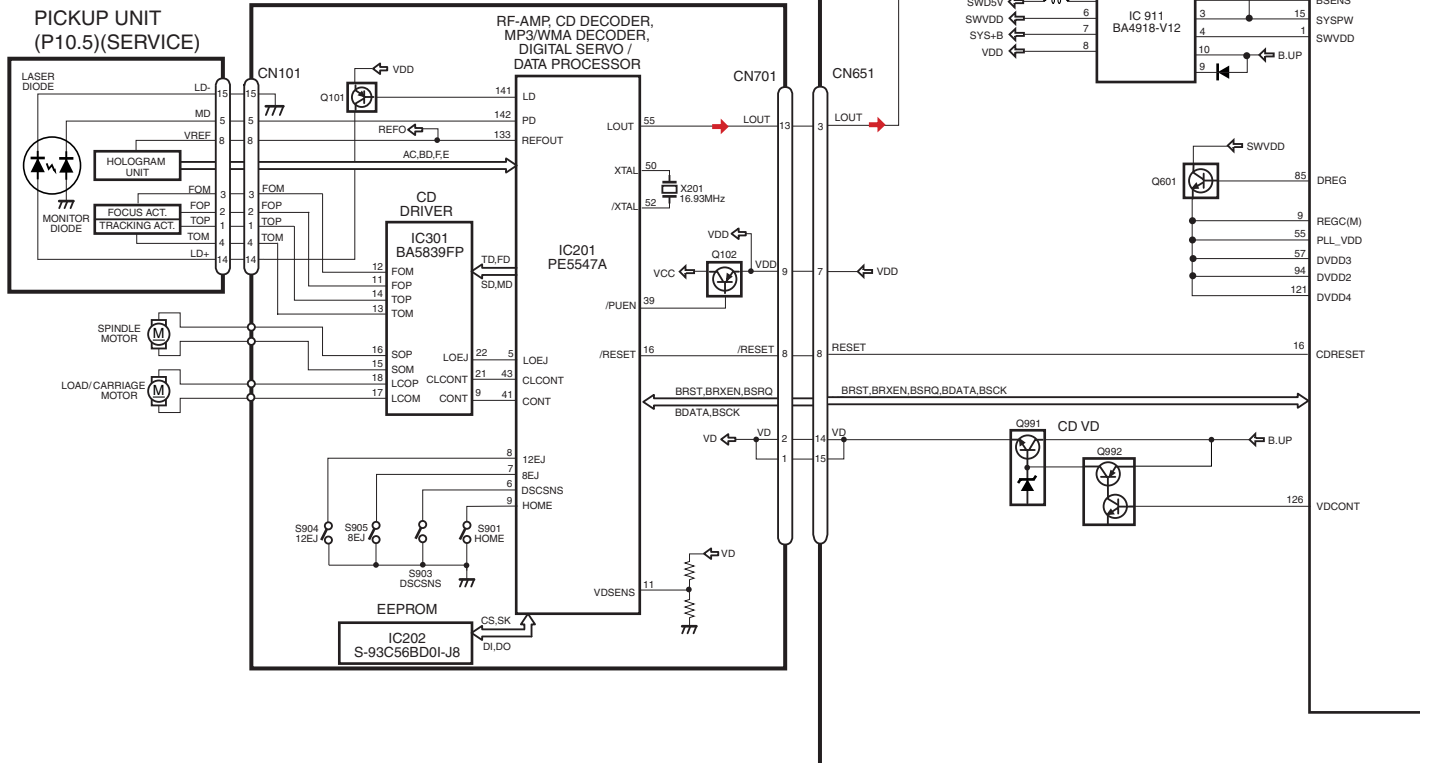
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

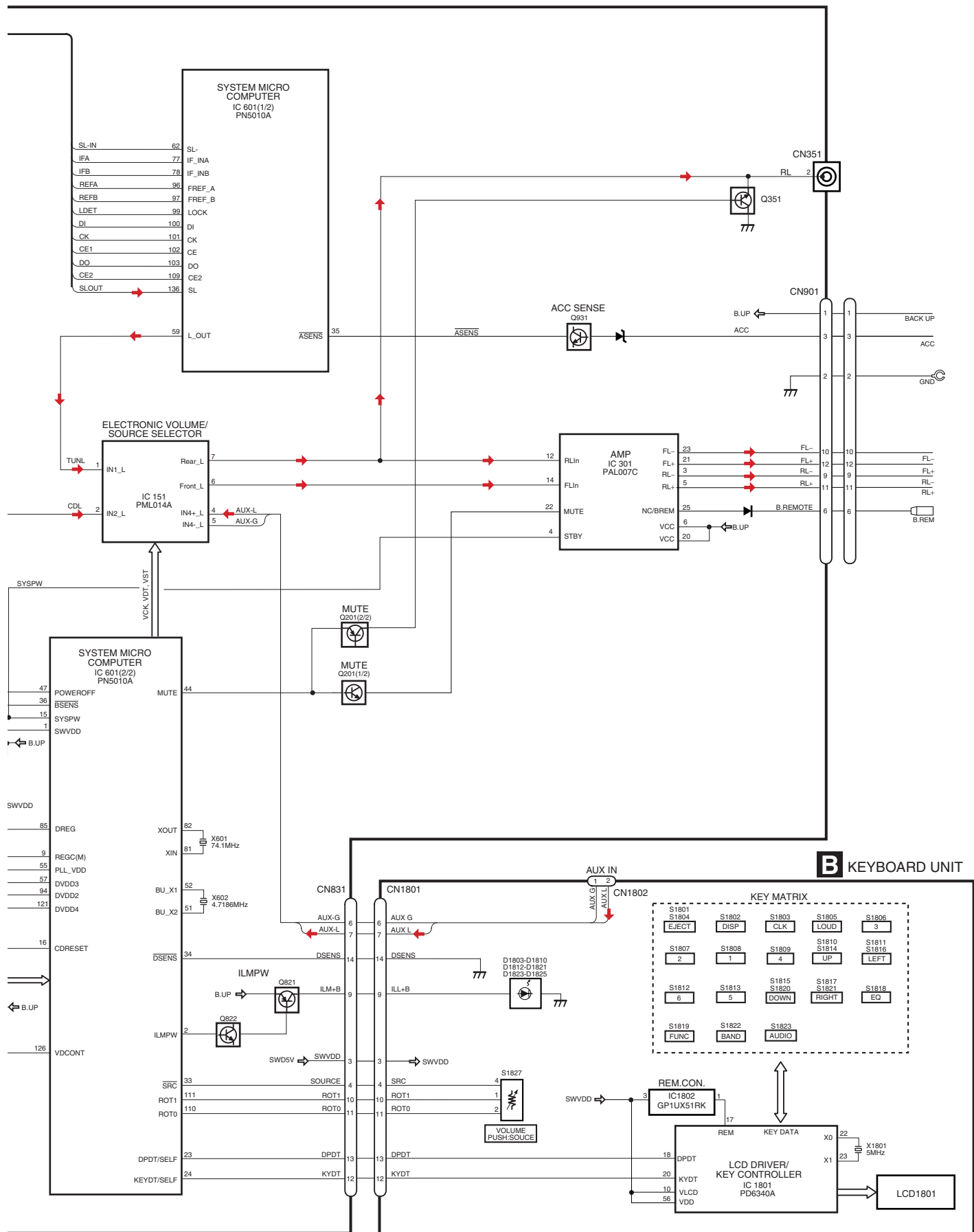
3.1 BLOCK DIAGRAM

A TUNER AMP UNIT



C CD CORE UNIT(S10.5COMP2)

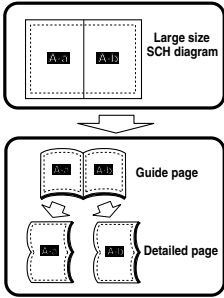




3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".

A



A-a

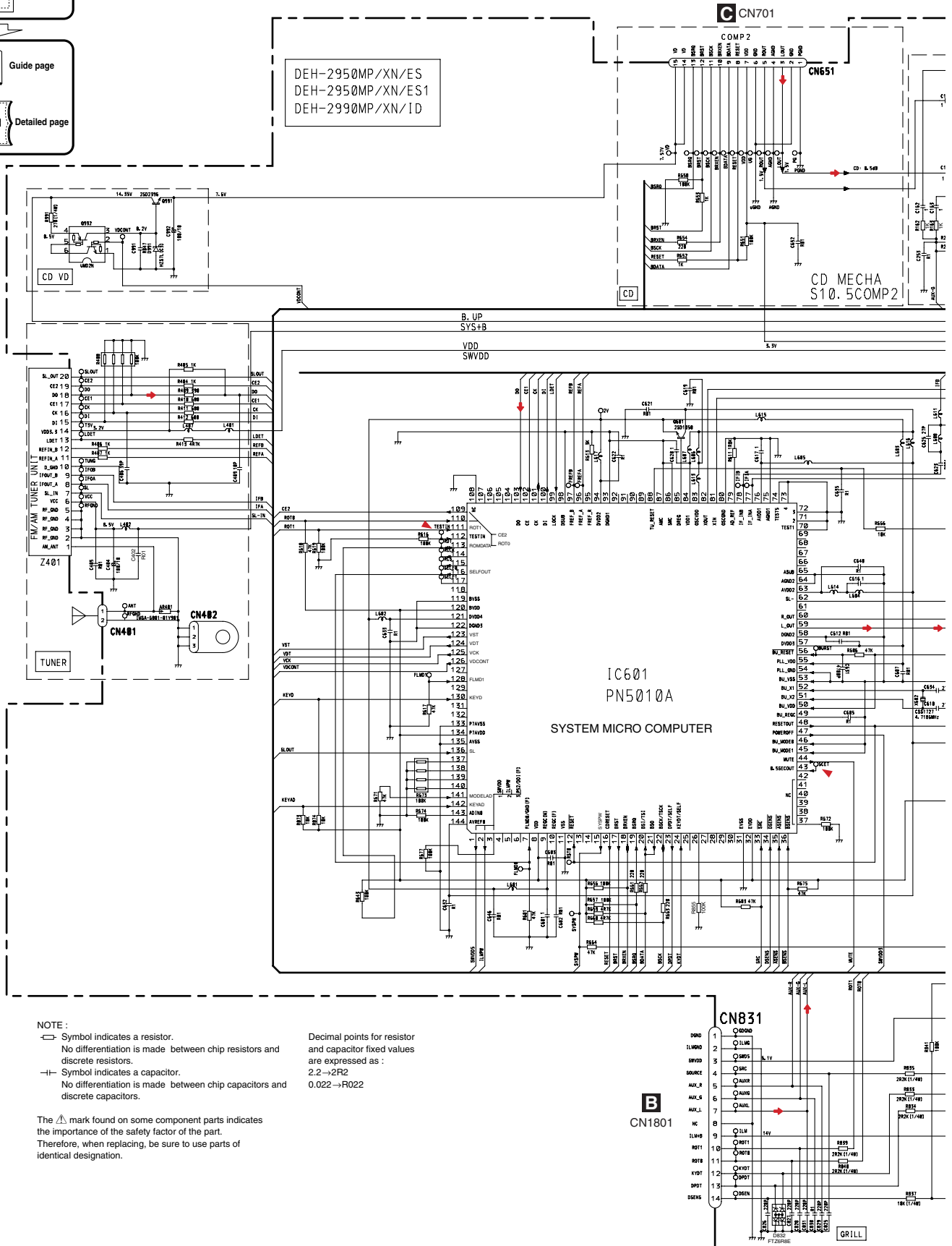
B

C

D

E

F



A

B

C

D

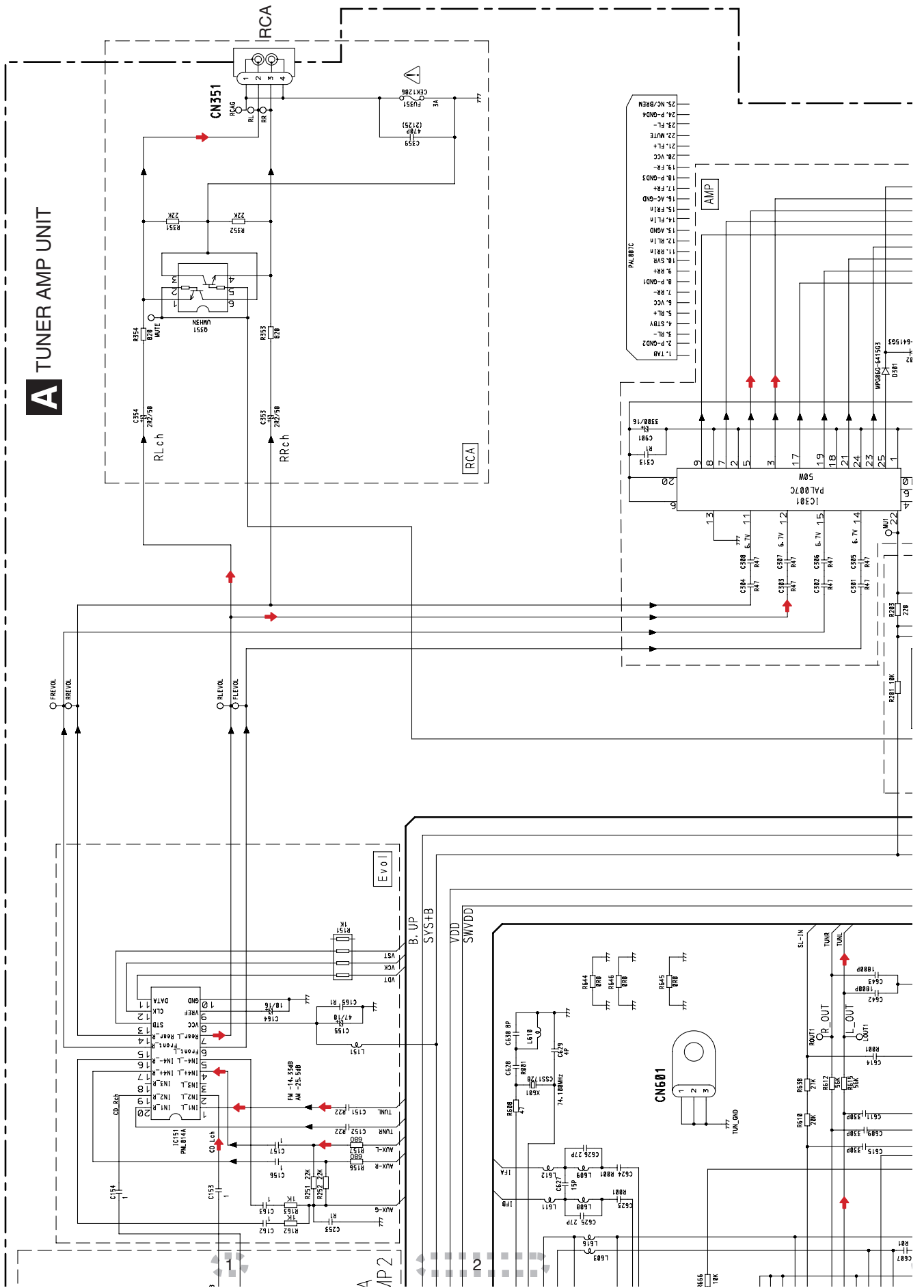
E

F

A



A TUNER AMP UNIT



A-b

DEH-2950MP/XN/ES



A

B

C

D

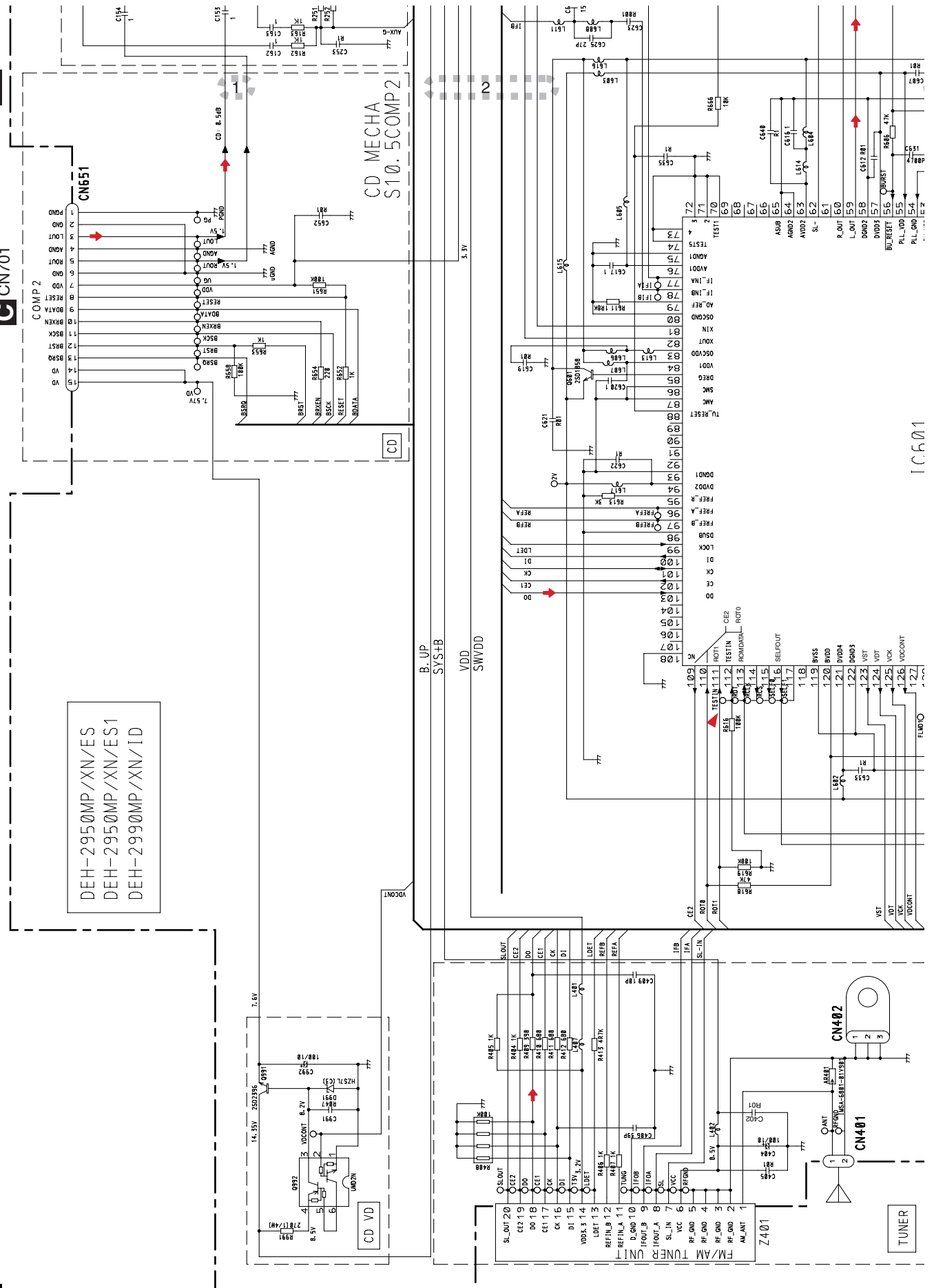
E

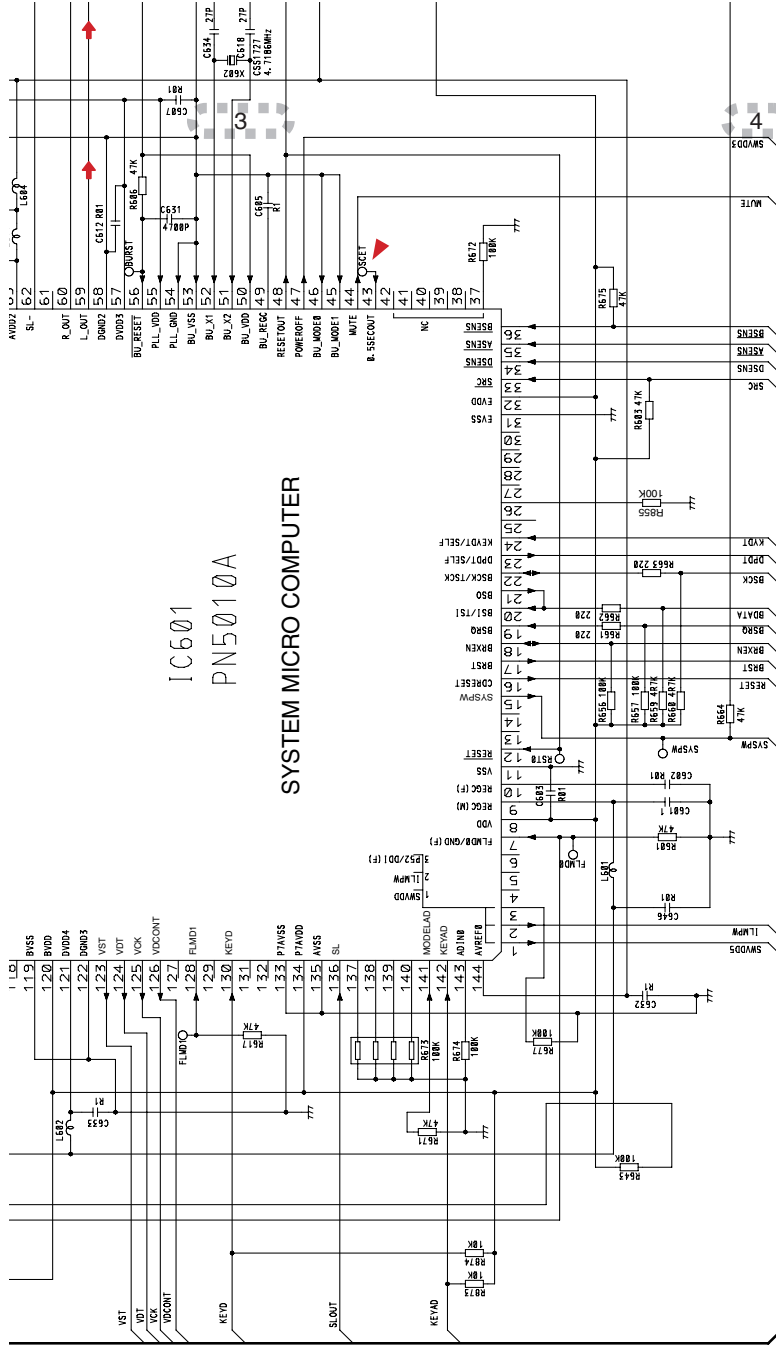
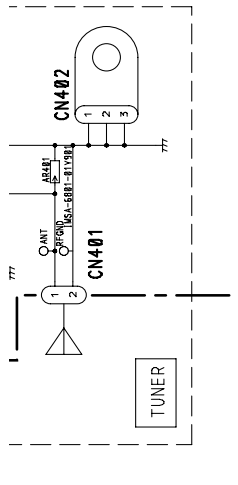
F

A-b

A-a A-b

A-a





NOTE :

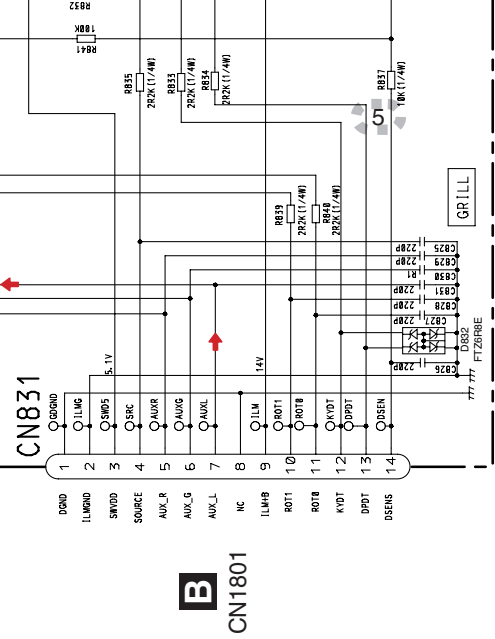
—□— Symbol indicates a resistor.

No differentiation is made between chip resistors and discrete resistors.

—||— Symbol indicates a capacitor.

No differentiation is made between chip capacitors and discrete capacitors.

The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.



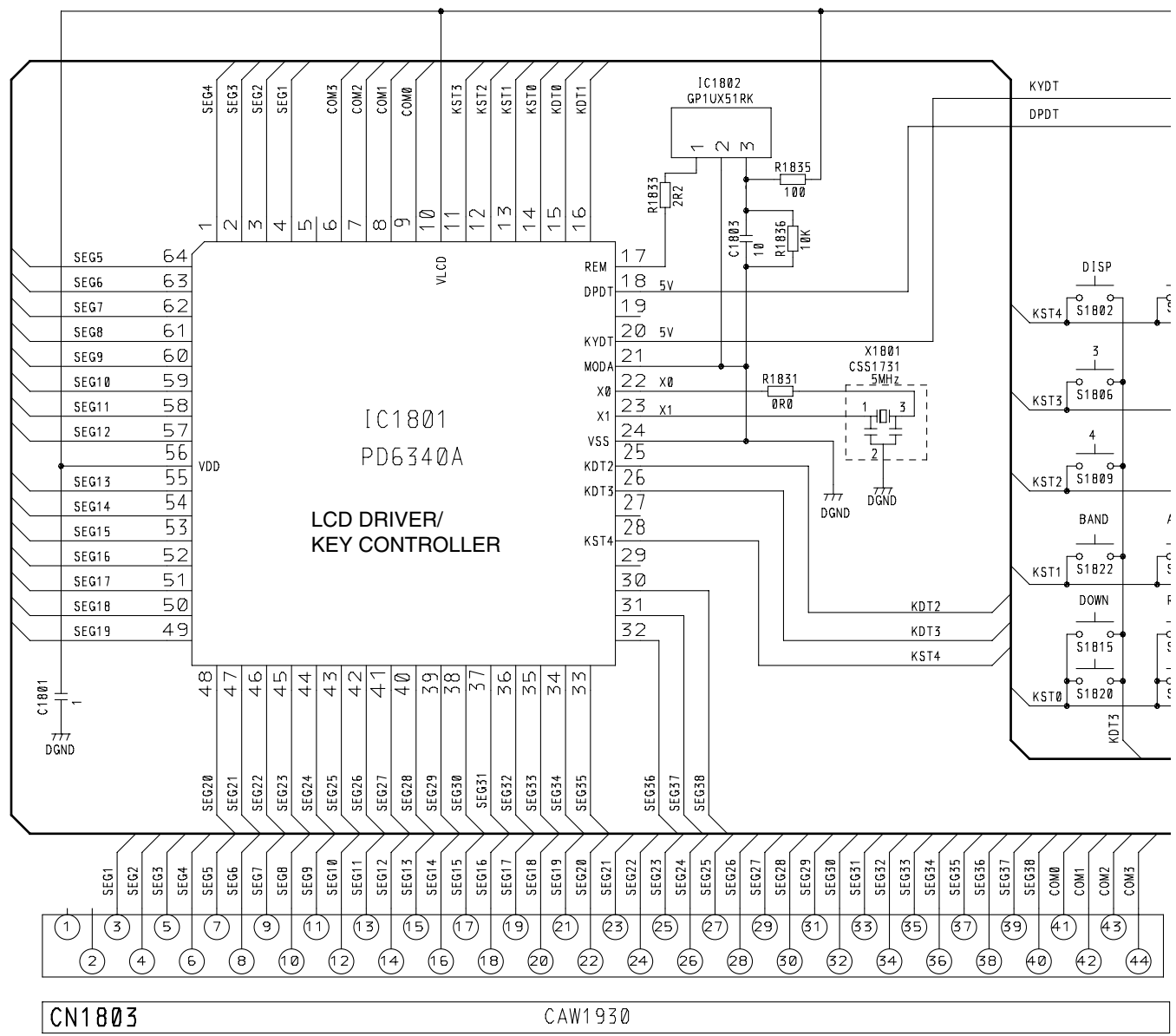
B

CN1801

A-a

A-b

3.3 KEYBOARD UNIT

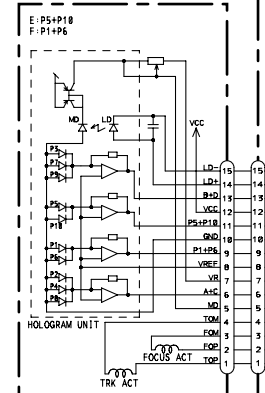




3.4 CD MECHANISM MODULE(GUIDE PAGE)

C-a

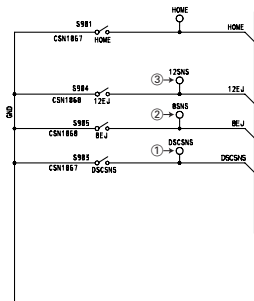
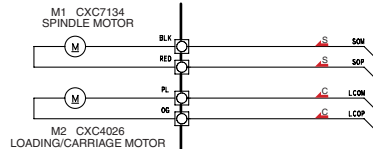
PICKUP UNIT(P10.5)(SERVICE)



F. ACT: Applying positive voltage to FOP.
T. ACT: Applying positive voltage to TOP.
The lens moves out of the center.

SWITCHES:
CD CORE UNIT(S10.5COMP2)
S901:HOME SWITCH.....ON-OFF
S903:DSCSNS SWITCH.....ON-OFF
S904:12EJ SWITCH.....ON-OFF
S905:8EJ SWITCH.....ON-OFF

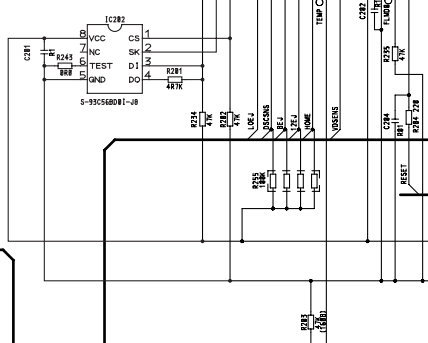
The underlined indicates the switch position.



	LOAD	EJ	PLAY	OFF
CLCONT	H	H	L	L
LOEJ	L	H	-	-
CONT	L	L	H	L

CD DRIVER

EEPROM



IC:
PE55
RF AMP, CD DECODE,
DIGITAL SERVO/D.

A

B

C

D

F

F



A

B

C

D

E

F

C-a	C-b
0.98	0.97
0.96	0.95
0.94	0.93
0.92	0.91
0.90	0.89
0.88	0.87
0.86	0.85
0.84	0.83
0.82	0.81
0.80	0.79
0.78	0.77
0.76	0.75
0.74	0.73
0.72	0.71
0.70	0.69
0.68	0.67
0.66	0.65
0.64	0.63
0.62	0.61
0.60	0.59
0.58	0.57
0.56	0.55
0.54	0.53
0.52	0.51
0.50	0.49
0.48	0.47
0.46	0.45
0.44	0.43
0.42	0.41
0.40	0.39
0.38	0.37
0.36	0.35
0.34	0.33
0.32	0.31
0.30	0.29
0.28	0.27
0.26	0.25
0.24	0.23
0.22	0.21
0.20	0.19
0.18	0.17
0.16	0.15
0.14	0.13
0.12	0.11
0.10	0.09
0.08	0.07
0.06	0.05
0.04	0.03
0.02	0.01
0.00	0.00

C-b

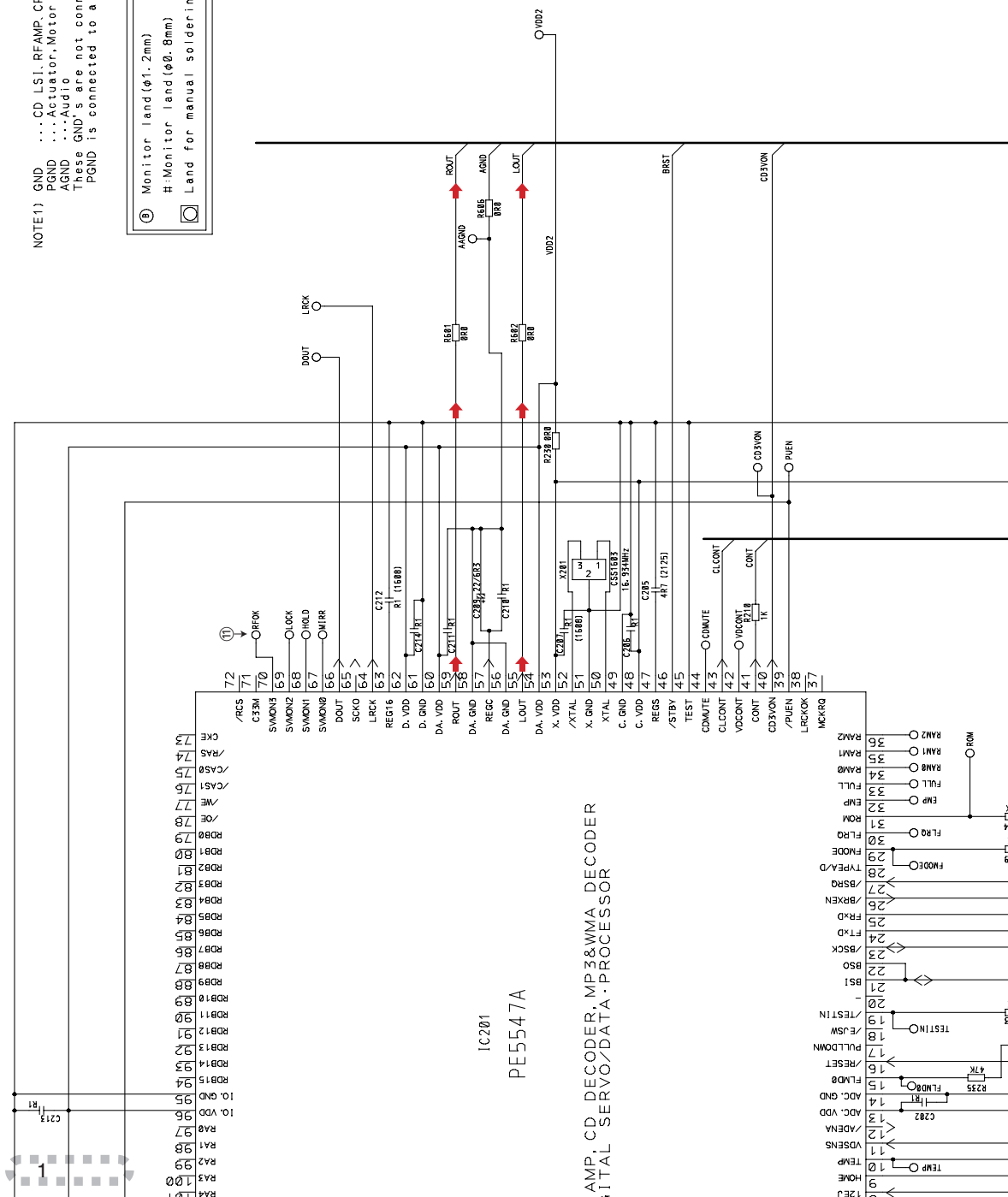
26

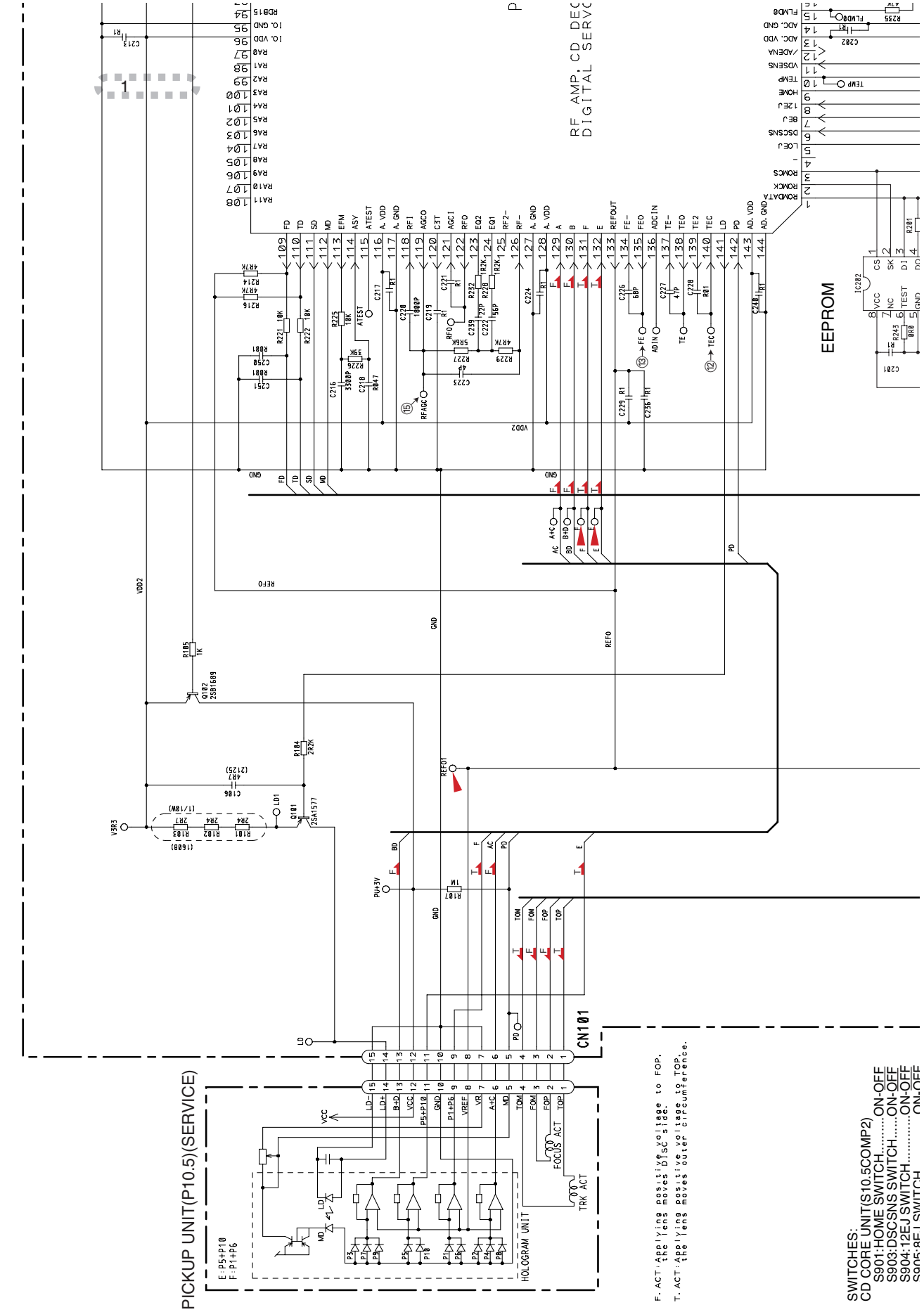
CD CORE UNIT(S10.5COMP2)

NOTE1) GND: ...CD LSI, RFAMP, CPU
PGND ...Actuator, Motor Driver
AGND ...Audio
These GND's are not connected to each other on PCB.
PGND is connected to a floating mechanism part by a screw.

ⓑ Monitor land (φ1.2mm)
#: Monitor land (φ0.8mm)
Land for manual soldering

↑ SIGNAL LINE
F FOCUS SERVO LINE
T TRACKING SERVO LINE
C CARRIAGE SERVO LINE
S SPINDLE SERVO LINE





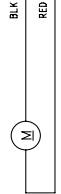
SWITCHES:
CD CORE UNIT(S10.5COMP2) ON-OFF
S901:HOME SWITCH ON-OFF
S903:DSCSNS SWITCH ON-OFF
S904:12EJ SWITCH ON-OFF
S905:REF1 SWITCH ON-OFF

F. ACT: Applying positive voltage to FOP.
T. ACT: Applying positive voltage to TOP.
S905:REF1 SWITCH ON-OFF

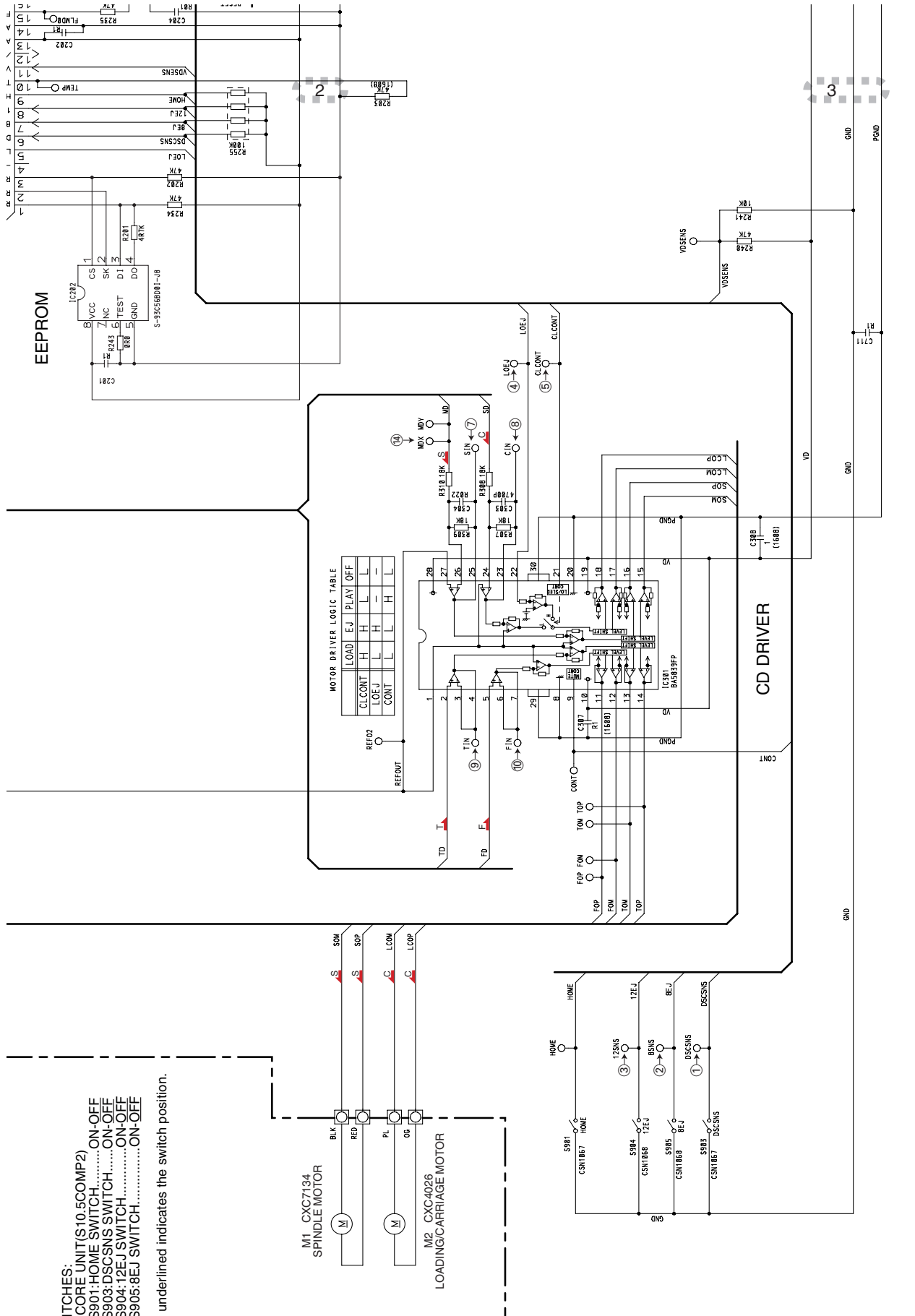
SWITCHES:
 CD CORE UNIT(S10.5COMP2)
 S901:HOME SWITCH.....ON-OFF
 S903:DSCSNS SWITCH.....ON-OFF
 S904:12EJ SWITCH.....ON-OFF
 S905:8EJ SWITCH.....ON-OFF

The underlined indicates the switch position.

M1 CXC7134
 SPINDLE MOTOR



M2 CXC4026
 LOADING/CARRIAGE MOTOR



C-a

C-a c-b

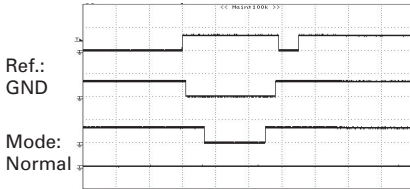
C-b

Waveforms

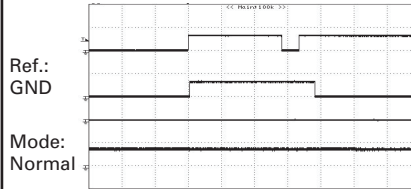
Note : 1. The encircled numbers denote measuring points in the circuit diagram.
2. Reference voltage REFO1(1.65 V)

A

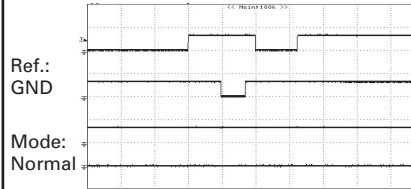
①DSCSNS 5 V/div 500 ms/div
②8SNS 5 V/div
③12SNS 5 V/div
④LOEJ 5 V/div
12 cm CD Loading operation



①DSCSNS 5 V/div 500 ms/div
⑤CLCONT 5 V/div
④LOEJ 5 V/div
⑥VD 10 V/div
12 cm CD Loading operation

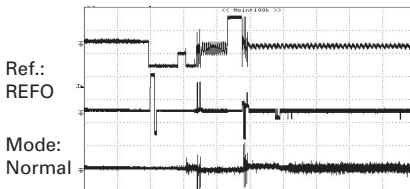


①DSCSNS 5 V/div 500 ms/div
②8SNS 5 V/div
③12SNS 5 V/div
④LOEJ 5 V/div
8 cm CD Loading operation

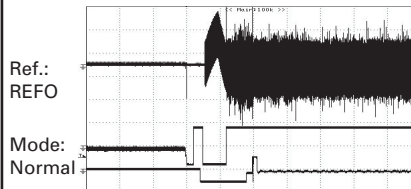


B

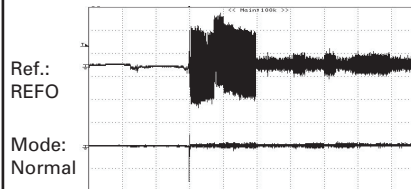
⑦SIN 1 V/div 1 s/div
⑧CIN 500 mV/div
⑨TIN 1 V/div
12 cm CD-DA setup operation after loading



⑩FIN 200 mV/div 500 ms/div
⑪RFOK(MONI_2) 2 V/div
⑦SIN 2 V/div
12 cm CD-DA Source On setup operation

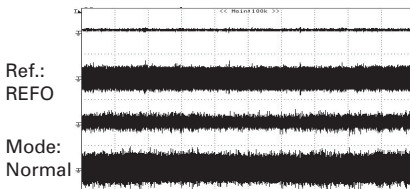


⑫TE 500 mV/div 200 ms/div
⑬FE 500 mV/div
Source On setup operation

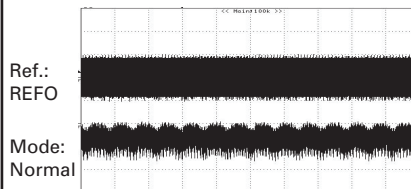


C

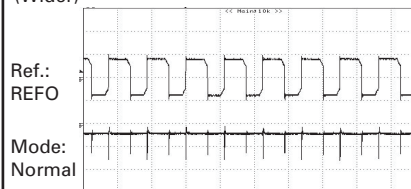
⑬FE 500 mV/div 20 ms/div
⑩FIN 500 mV/div
⑫TE 500 mV/div
⑨TIN 500 mV/div
CD-DA Play operation



⑭MDX 2 V/div 200 ms/div
⑦SIN 500 mV/div
Spindle waveform during play operation

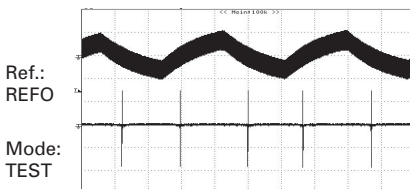


⑭MDX 2 V/div 5 μs/div
⑦SIN 500 mV/div
Spindle waveform during play operation (Wider)

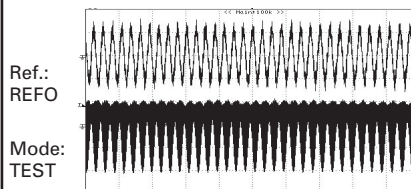


D

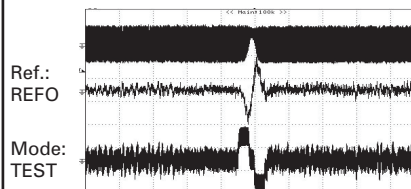
⑩FIN 500 mV/div 200 ms/div
⑬FE 500 mV/div
Focus Search waveform



⑫TE 500 mV/div 2 ms/div
⑮RFAGC 500 mV/div
Track Open waveform

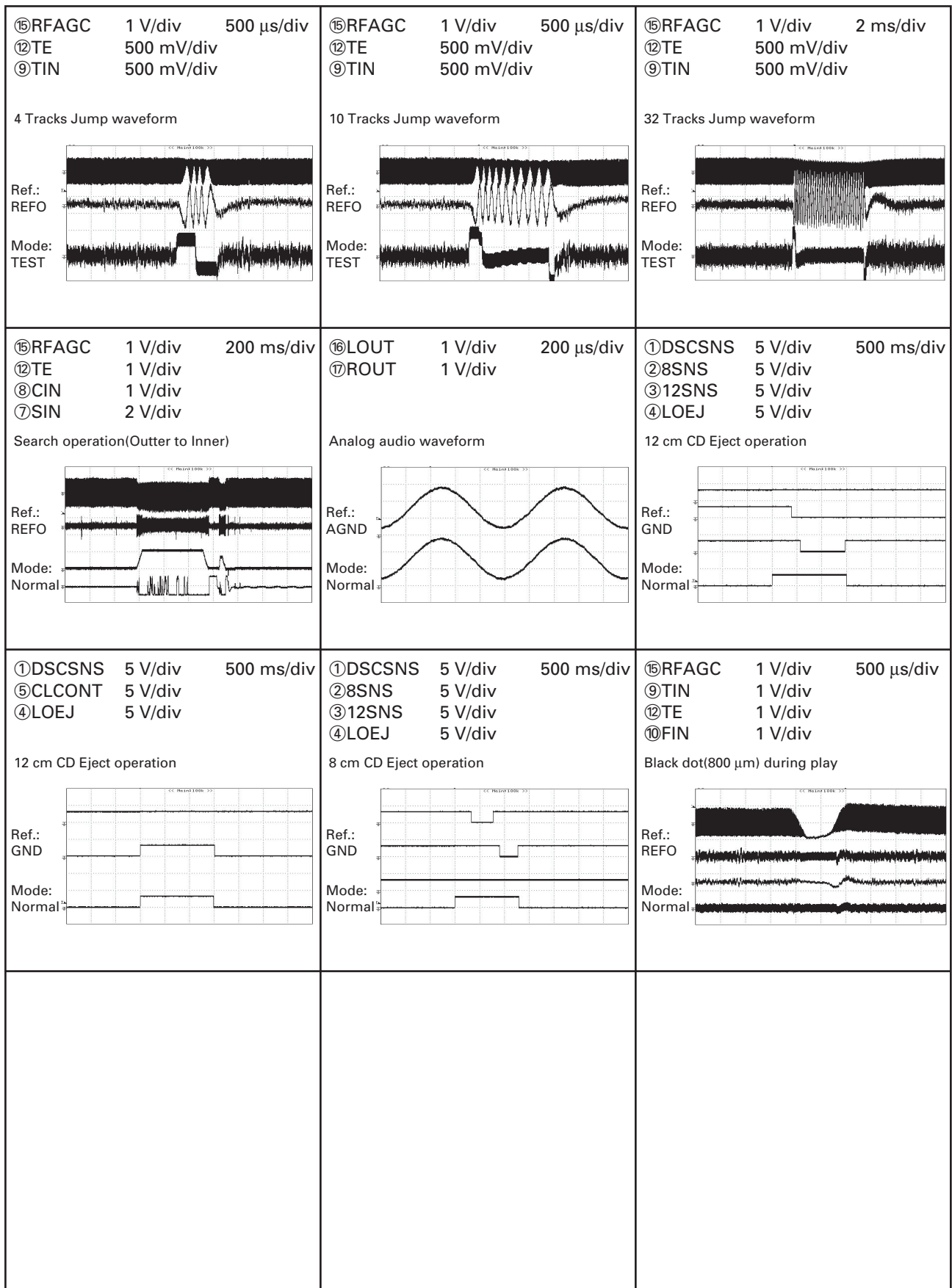


⑮RFAGC 1 V/div 500 μs/div
⑫TE 500 mV/div
⑨TIN 500 mV/div
1 Track Jump waveform



E

F



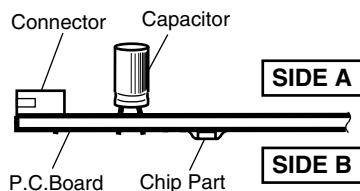
4. PCB CONNECTION DIAGRAM

4.1 TUNER AMP UNIT

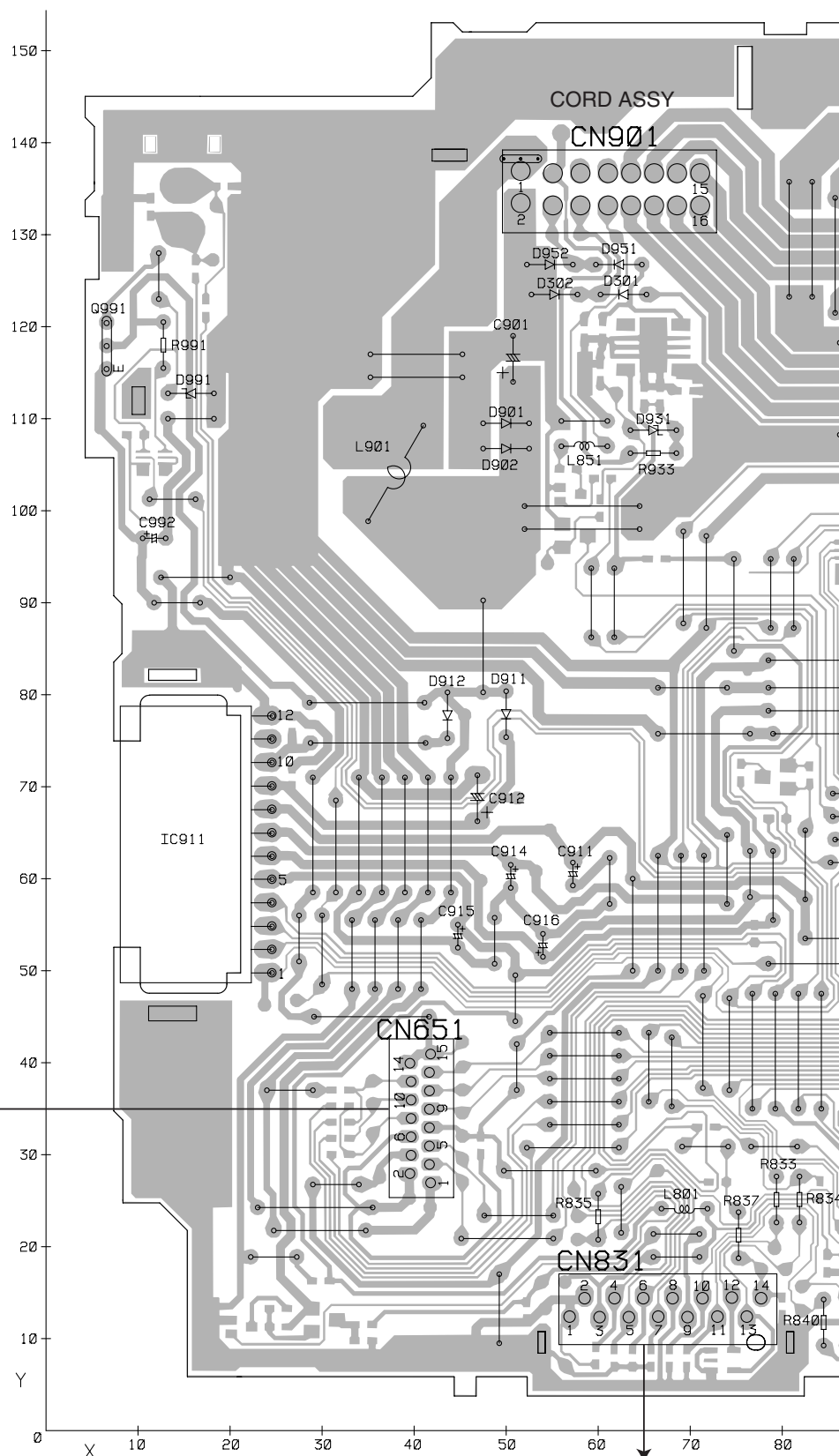
NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
For further information for respective destinations, be sure to check with the schematic diagram.

2. Viewpoint of PCB diagrams



A TUNER AMP UNIT

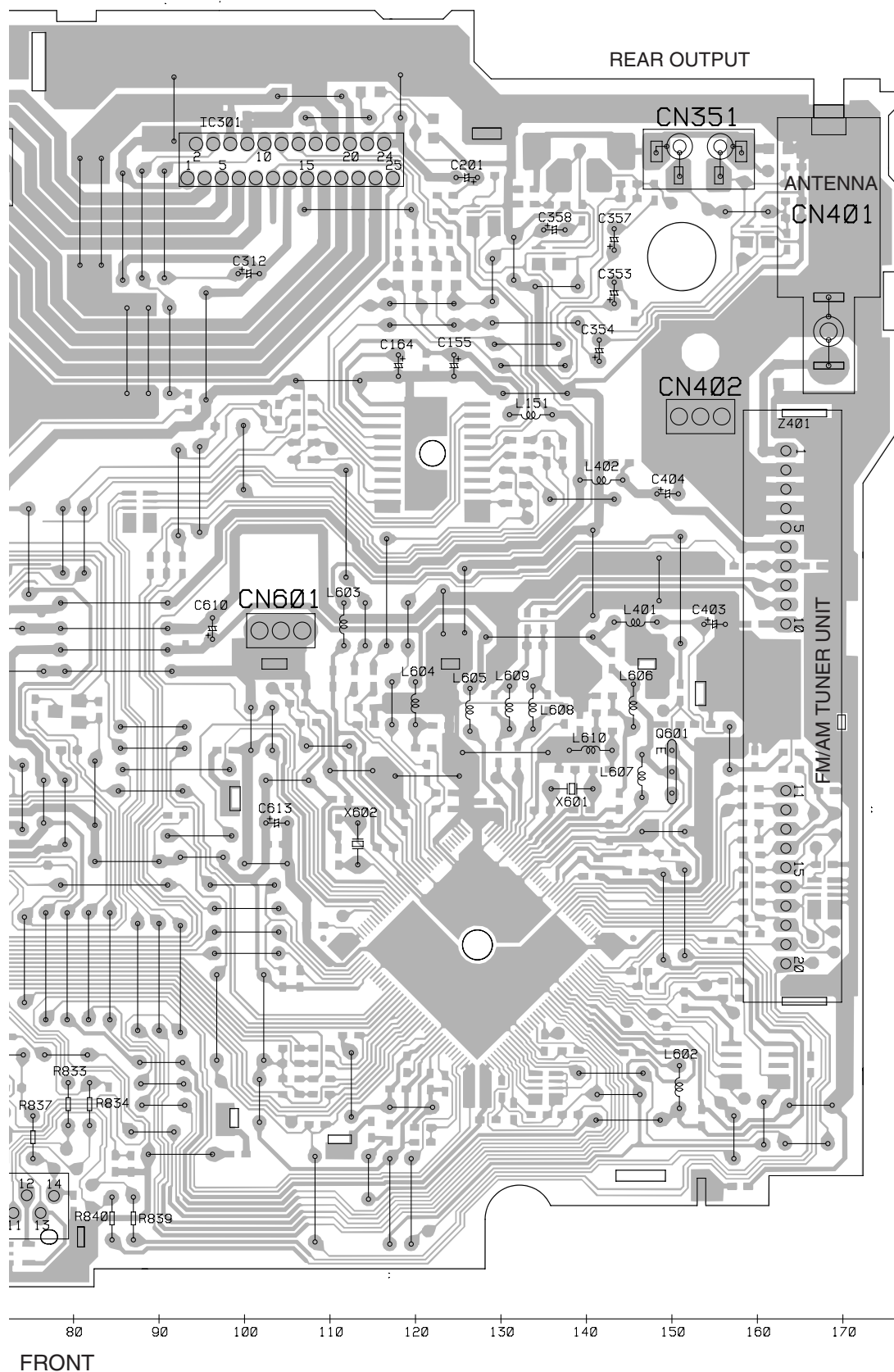


A

B CN1801 FRONT

DEH-2950MP/XN/ES

SIDE A



A

A TUNER AMP UNIT

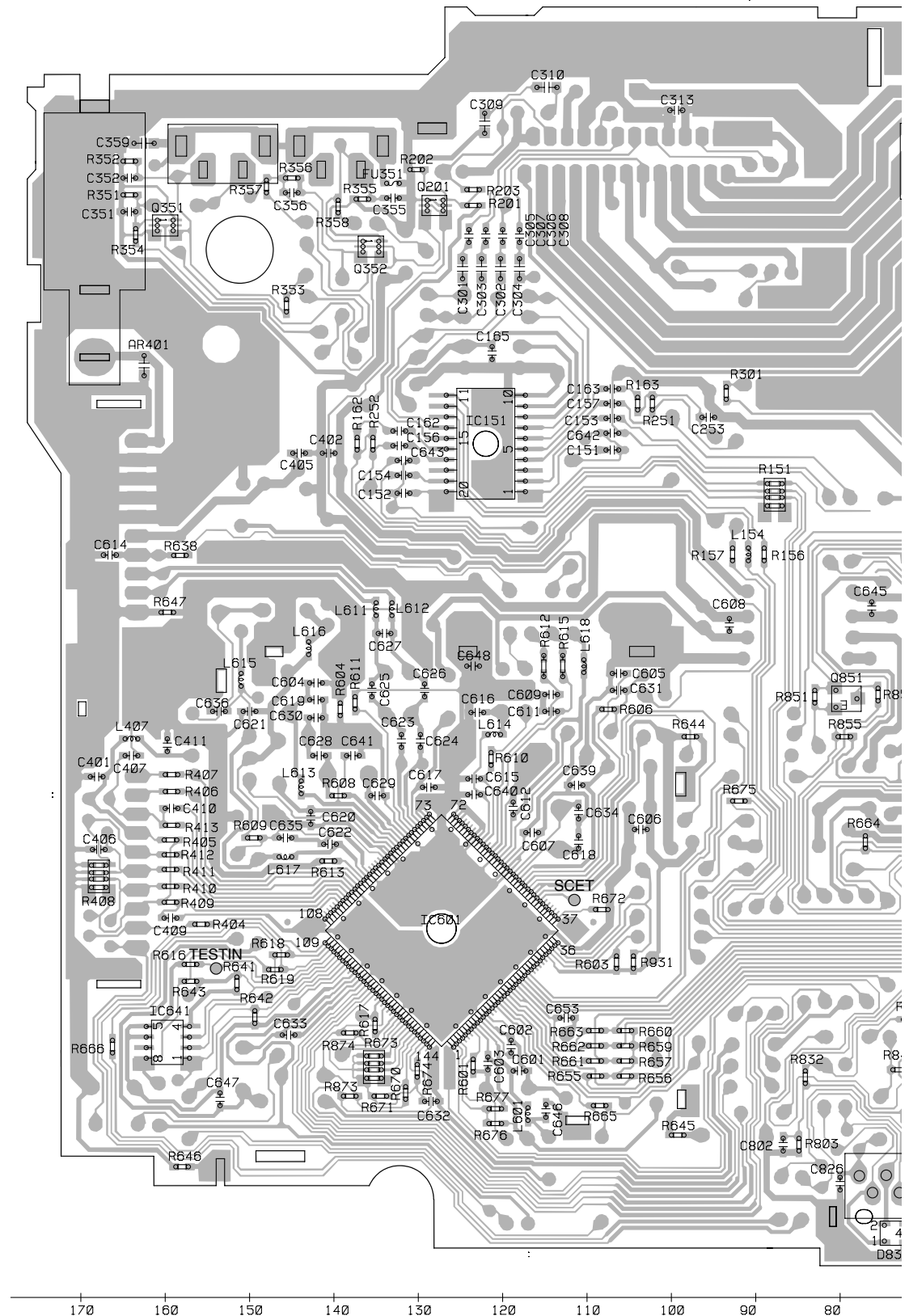
B

C

D

E

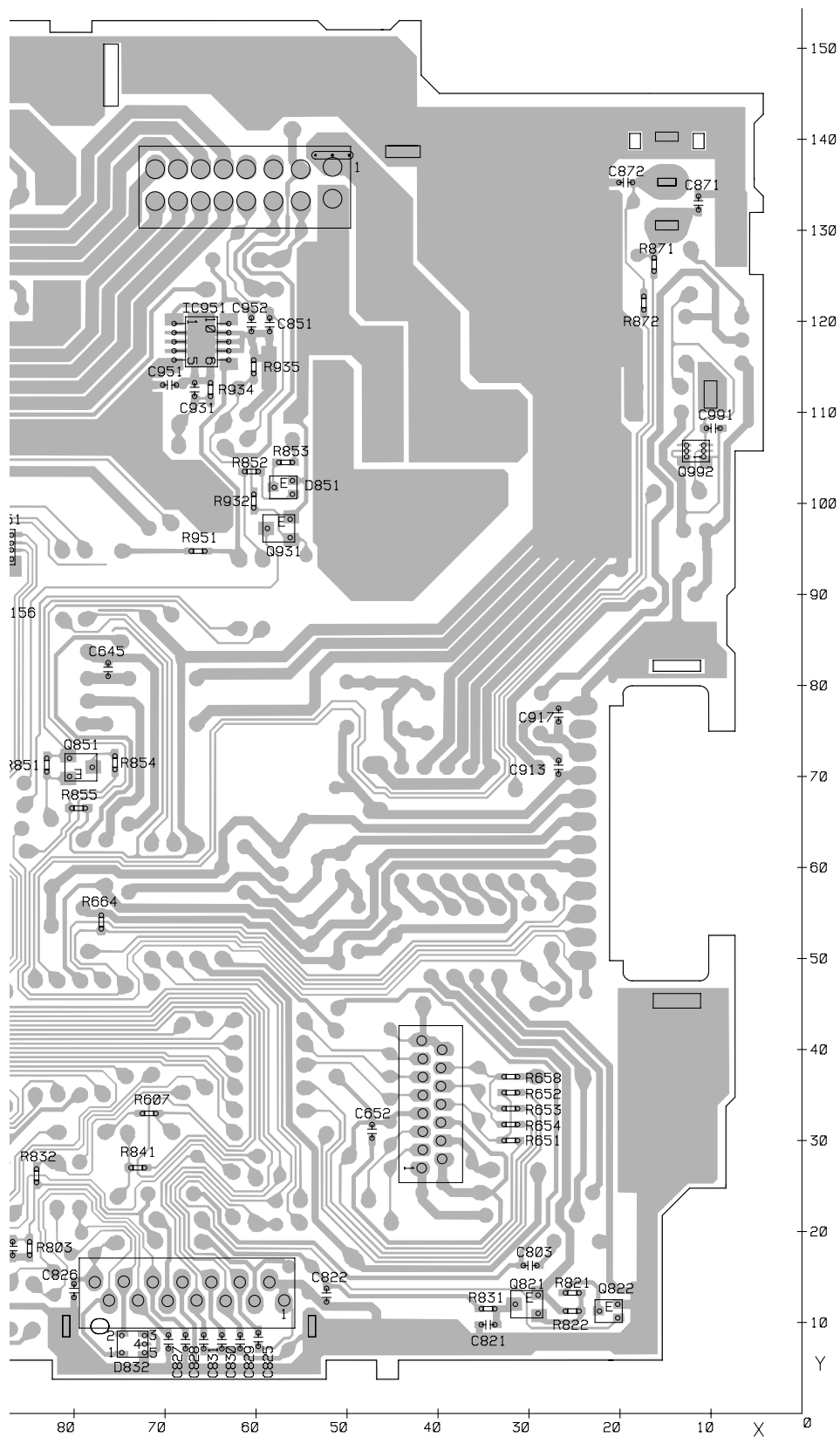
F



A

DEH-2950MP/XN/ES

SIDE B



△

SIDE B



■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

DEH-2950MP/XN/ES

■

7

■

8

■

4.3 CD CORE UNIT(S10.5COMP2)

CD CORE UNIT(S10.5COMP2)

SIDE A

A

B

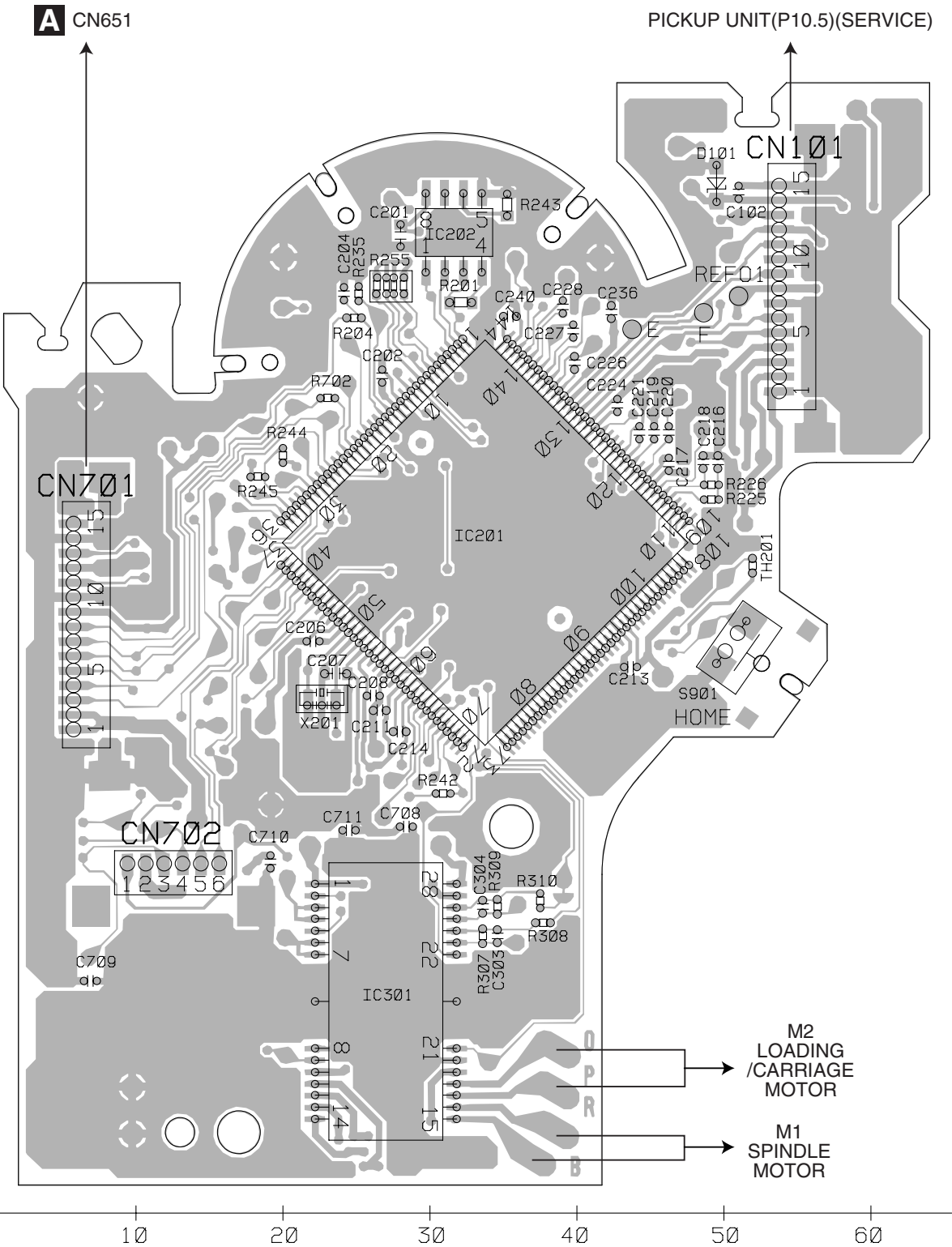
C

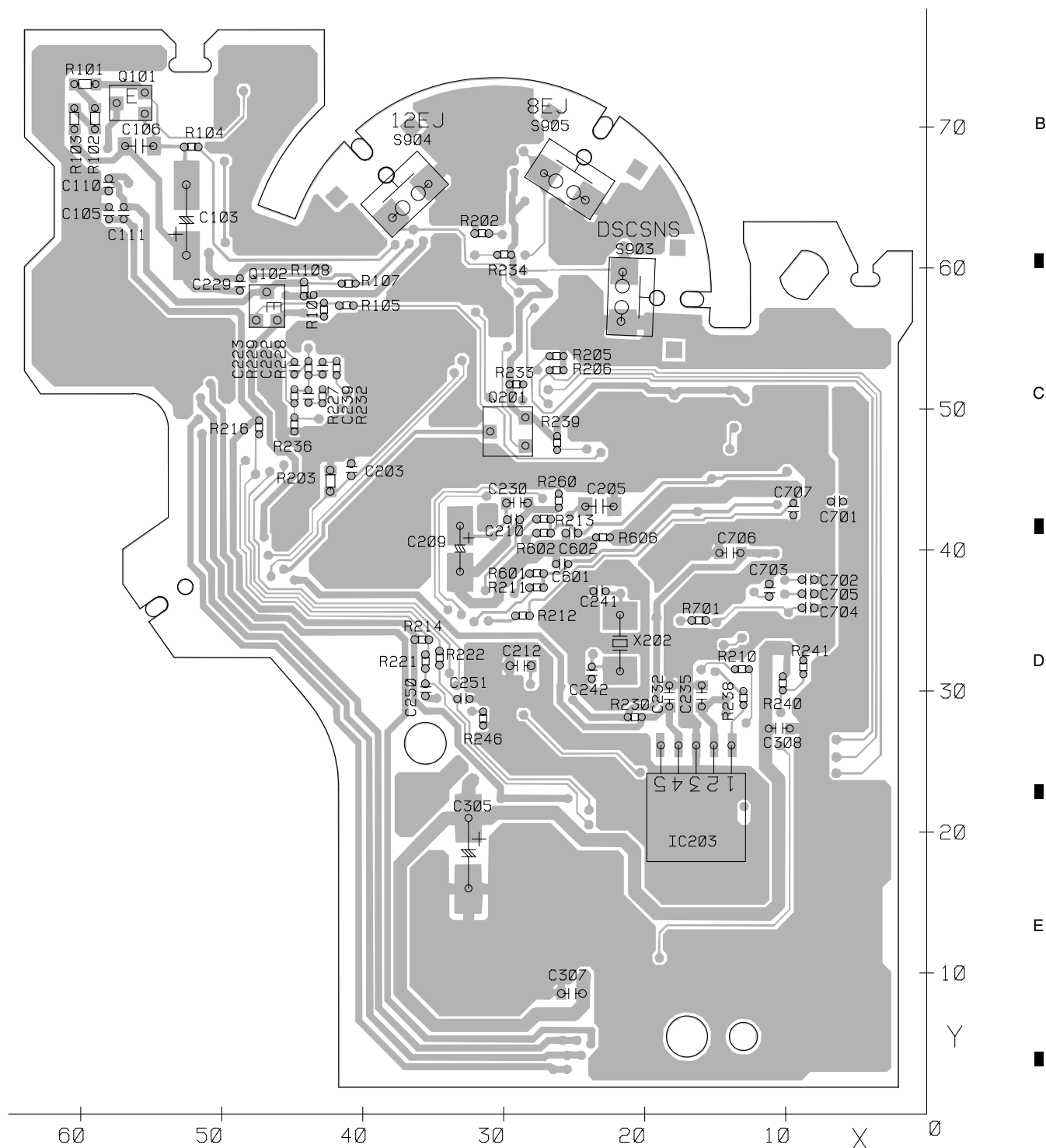
D

E

F

C





5. ELECTRICAL PARTS LIST

NOTE:


- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○○J,RS1/○○S○○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Meaning of the figures and others in the parentheses in the parts list.

Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.

IC 301 (A, 91, 111) IC NJM2068V

Circuit Symbol and No.

Part No.

Unit Number: CWN2037

Unit Name : Tuner Amp Unit

Unit Number:(2950MP,2990MP)

Unit Name : Keyboard Unit

Unit Number: CWX3350

Unit Name : CD Core

Unit(S10.5COMP2)

A

Unit Number: CWN2037

Unit Name : Tuner Amp Unit

MISCELLANEOUS

IC 151	(B,122,101) IC	PML014A
IC 301	(A,93,133) IC	PAL007C
IC 601	(B,127,44) IC	PN5010A
IC 911	(A,14,64) IC	BA4918-V12
Q 201	(B,128,130) Transistor	UMD2N

Q 351	(B,160,127) Transistor	UMH3N
Q 601	(A,150,67) Transistor	2SD1858
Q 821	(B,30,12) Transistor	2SA1036K
Q 822	(B,21,11) Transistor	DTC114EUA
Q 931	(B,58,97) Transistor	2SC2412K

Q 991	(A,7,115) Transistor	2SD2396
Q 992	(B,12,106) Transistor	UMD2N
D 301	(A,65,124) Diode	MPG06G-6415G3
D 302	(A,53,124) Diode	MPG06G-6415G3
D 832	(B,74,8) Diode	FTZ6R8E
D 901	(A,48,110) Diode	MPG06G-6415G3

D 902	(A,48,107) Diode	MPG06G-6415G3
D 911	(A,50,80) Diode	MPG06G-6415G3
D 912	(A,44,80) Diode	MPG06G-6415G3
D 931	(A,64,109) Diode	HZS7L(A1)
D 991	(A,18,113) Diode	HZS7L(C3)

L 151	(A,136,106) Inductor	LAU2R2K
L 401	(A,148,82) Inductor	LAU2R2K

Circuit Symbol and No.

Part No.



L 402	(A,144,98) Inductor	LAU2R2K
L 407	(B,164,66) Inductor	CTF1473
L 601	(B,117,22) Inductor	CTF1389

L 602	(A,151,25) Inductor	LAUR47K
L 603	(A,112,79) Inductor	LAU2R2K
L 604	(A,120,70) Inductor	LAUR47K
L 605	(A,126,69) Inductor	LAUR47K
L 606	(A,146,69) Inductor	LAU1R0K

L 607	(A,147,61) Inductor	LAU1R0K
L 608	(A,134,69) Inductor	LAU1R5K
L 609	(A,131,69) Inductor	LAU1R5K
L 610	(A,138,67) Inductor	LAU1R2J
L 611	(B,135,82) Inductor	CTF1379

L 612	(B,133,82) Inductor	CTF1379
L 613	(B,144,61) Inductor	CTF1379
L 614	(B,121,67) Inductor	CTF1379
L 615	(B,151,73) Inductor	CTF1379
L 616	(B,143,77) Inductor	CTF1379

L 617	(B,146,52) Inductor	CTF1389
L 801	(A,72,24) Inductor	LAU2R2K
L 901	(A,35,98) Choke Coil 600 μ H	CTH1291
X 601	(A,141,62) Crystal 74.100 MHz	CSS1728
X 602	(A,113,58) Crystal 4.718 6 MHz	CSS1727

 FU351	(B,133,132) Fuse 3 A	CEK1286
AR401	(B,163,111) Surge Protector	IMSA-6801-01Y901
	Fuse 10 A	CEK1208
	FM/AM Tuner Unit	CWE2025

RESISTORS

R 151	(B,88,95)	RAB4C102J
R 156	(B,89,88)	RS1/16S681J
R 157	(B,93,88)	RS1/16S681J
R 162	(B,137,101)	RS1/16S102J
R 163	(B,104,106)	RS1/16S102J

R 201	(B,124,130)	RS1/16S103J
R 202	(B,130,134)	RS1/16S153J
R 203	(B,124,131)	RS1/16S221J
R 251	(B,102,106)	RS1/16S223J
R 252	(B,135,101)	RS1/16S223J

R 301	(B,94,107)	RS1/16S153J
R 351	(B,164,131)	RS1/16S223J

5		6		7		8	
<u>Circuit Symbol and No.</u>		<u>Part No.</u>		<u>Circuit Symbol and No.</u>		<u>Part No.</u>	
R 352	(B,164,135)	RS1/16S223J		R 839	(A,87,14)	RD1/4PU222J	A
R 353	(B,146,118)	RS1/16S821J		R 840	(A,85,14)	RD1/4PU222J	
R 354	(B,164,126)	RS1/16S821J		R 841	(B,73,27)	RS1/16S104J	
R 404	(B,156,44)	RS1/16S102J		R 873	(B,138,24)	RS1/16S103J	
R 405	(B,159,54)	RS1/16S102J		R 874	(B,138,31)	RS1/16S103J	
R 406	(B,159,60)	RS1/16S102J		R 931	(B,105,40)	RS1/16S104J	B
R 407	(B,159,62)	RS1/16S102J		R 932	(B,60,100)	RS1/16S223J	
R 408	(B,168,50)	RAB4C104J		R 933	(A,69,106)	RD1/4PU102J	
R 409	(B,159,47)	RS1/16S391J		R 934	(B,65,113)	RS1/16S472J	
R 410	(B,159,49)	RS1/16S681J		R 935	(B,60,115)	RS1/16S473J	
R 411	(B,159,51)	RS1/16S681J		R 991	(A,13,116)	RD1/4PU271J	C
R 412	(B,159,53)	RS1/16S681J		CAPACITORS			
R 413	(B,159,56)	RS1/16S472J		C 151	(B,107,101)	CKSRYB224K16	
R 601	(B,124,28)	RS1/16S473J		C 152	(B,132,95)	CKSRYB224K16	
R 603	(B,107,40)	RS1/16S473J		C 153	(B,107,104)	CKSRYB105K10	D
R 606	(B,108,70)	RS1/16S473J		C 154	(B,132,98)	CKSRYB105K10	
R 608	(B,140,60)	RS1/16S470J		C 155	(A,125,113)	CEJQ470M10	
R 610	(B,121,64)	RS1/16S203J		C 156	(B,132,101)	CKSRYB105K10	
R 611	(B,138,71)	RS1/16S182J		C 157	(B,107,106)	CKSRYB105K10	
R 612	(B,115,75)	RS1/16S563J		C 162	(B,132,103)	CKSRYB105K10	E
R 613	(B,141,52)	RS1/16S302J		C 163	(B,107,108)	CKSRYB105K10	
R 615	(B,113,75)	RS1/16S563J		C 164	(A,118,113)	CEJQ100M16	
R 616	(B,157,40)	RS1/16S104J		C 165	(B,121,112)	CKSRYB104K16	
R 617	(B,135,32)	RS1/16S473J		C 201	(A,127,134)	CEJQ330M10	
R 618	(B,146,41)	RS1/16S473J		C 253	(B,96,104)	CKSRYB104K16	F
R 619	(B,147,39)	RS1/16S104J		C 301	(B,125,122)	CKSQYB474K16	
R 638	(B,158,88)	RS1/16S273J		C 302	(B,120,122)	CKSQYB474K16	
R 643	(B,157,38)	RS1/16S104J		C 303	(B,123,122)	CKSQYB474K16	
R 644	(B,98,67)	RS1/16S0R0J		C 304	(B,118,122)	CKSQYB474K16	
R 645	(B,99,19)	RS1/16S0R0J		C 305	(B,124,126)	CKSRYB474K10	A
R 646	(B,158,16)	RS1/16S0R0J		C 306	(B,120,126)	CKSRYB474K10	
R 651	(B,32,30)	RS1/16S104J		C 307	(B,122,126)	CKSRYB474K10	
R 652	(B,32,35)	RS1/16S102J		C 308	(B,118,126)	CKSRYB474K10	
R 653	(B,32,34)	RS1/16S102J		C 309	(B,122,139)	CKSQYB225K10	
R 654	(B,32,32)	RS1/16S221J		C 310	(B,115,144)	CKSQYB225K10	B
R 656	(B,105,26)	RS1/16S104J		C 312	(A,99,122)	CEJQ100M16	
R 657	(B,105,28)	RS1/16S104J		C 313	(B,99,141)	CKSRYB104K16	
R 658	(B,32,37)	RS1/16S104J		C 353	(A,143,119)	CEJQ2R2M50	
R 659	(B,105,30)	RS1/16S472J		C 354	(A,142,112)	CEJQ2R2M50	
R 660	(B,105,32)	RS1/16S472J		C 359	(B,163,137)	CCSQCH471J50	C
R 661	(B,109,28)	RS1/16S221J		C 402	(B,141,100)	CKSRYB103K50	
R 662	(B,109,30)	RS1/16S221J		C 404	(A,148,97)	CEJQ101M10	
R 663	(B,109,32)	RS1/16S221J		C 405	(B,144,100)	CKSRYB103K50	
R 664	(B,77,54)	RS1/16S473J		C 406	(B,168,53)	CCSRCH390J50	
R 666	(B,166,30)	RS1/16S103J		C 409	(B,159,45)	CCSRCH100D50	D
R 671	(B,135,24)	RS1/16S473J		C 601	(B,118,27)	CKSRYB105K10	
R 672	(B,108,46)	RS1/16S104J		C 602	(B,119,30)	CKSRYB103K50	
R 673	(B,135,27)	RAB4C104J		C 603	(B,122,28)	CKSRYB103K50	
R 674	(B,130,27)	RS1/16S104J		C 605	(B,106,74)	CKSRYB104K16	E
R 675	(B,92,59)	RS1/16S473J		C 606	(B,104,56)	CKSRYB103K50	
R 677	(B,121,22)	RS1/16S104J		C 607	(B,117,55)	CKSRYB103K50	
R 803	(B,85,18)	RS1/16S222J		C 608	(B,93,80)	CKSRYB103K50	
R 821	(B,25,13)	RS1/16S562J		C 609	(B,114,72)	CKSRYB331K50	
R 822	(B,25,11)	RS1/16S103J		C 610	(A,96,80)	CEJQ101M6R3	F
R 831	(B,35,12)	RS1/16S1R0J		C 611	(B,114,70)	CKSRYB331K50	
R 832	(B,84,26)	RS1/16S473J		C 612	(B,119,58)	CKSRYB103K50	
R 833	(A,79,23)	RD1/4PU222J		C 613	(A,103,58)	CEAL101M6R3	
R 834	(A,82,23)	RD1/4PU222J		C 614	(B,167,88)	CKSRYB102K50	
R 835	(A,60,21)	RD1/4PU222J					
R 837	(A,75,19)	RD1/4PU103J					

Circuit Symbol and No.**Part No.****Circuit Symbol and No.****Part No.**

A	C 615	(B,123,62)	CKSRYB331K50
	C 616	(B,123,69)	CKSRYB105K10
	C 617	(B,129,61)	CKSRYB105K10
	C 618	(B,111,54)	CCSRCH270J50
	C 619	(B,142,71)	CKSRYB103K50

D 1807	(A,38,126) LED(2950MP)	CL-195SR-CD
	(A,38,126) LED(2990MP)	CL-195PG-CD
D 1808	(A,38,116) LED(2950MP)	CL-195SR-CD
	(A,38,116) LED(2990MP)	CL-195PG-CD
D 1809	(A,38,73) LED(2950MP)	CL-195SR-CD

	C 620	(B,143,57)	CKSRYB105K10
	C 621	(B,150,70)	CKSRYB103K50
	C 622	(B,140,54)	CKSRYB104K16
	C 623	(B,132,66)	CKSRYB102K50
	C 624	(B,130,66)	CKSRYB102K50

	(A,38,73) LED(2990MP)	CL-195PG-CD
D 1810	(A,23,150) LED	NESW505C-5273
D 1812	(A,32,9) LED(2950MP)	CL-195SR-CD
	(A,32,9) LED(2990MP)	CL-195PG-CD
D 1813	(A,20,19) LED(2950MP)	CL-195SR-CD

	C 625	(B,136,72)	CCSRCH270J50
	C 626	(B,129,72)	CCSRCH270J50
	C 627	(B,134,79)	CCSRCH150J50
	C 628	(B,142,64)	CKSRYB102K50
B	C 629	(B,135,60)	CCSRCH4R0C50

	(A,20,19) LED(2990MP)	CL-195PG-CD
D 1814	(A,38,84) LED(2950MP)	CL-195SR-CD
	(A,38,84) LED(2990MP)	CL-195PG-CD
D 1815	(A,38,94) LED(2950MP)	CL-195SR-CD
	(A,38,94) LED(2990MP)	CL-195PG-CD

	C 630	(B,142,69)	CCSRCH8R0D50
	C 631	(B,106,72)	CKSRYB472K50
	C 632	(B,129,23)	CKSRYB104K16
	C 633	(B,145,31)	CKSRYB104K16
	C 634	(B,111,58)	CCSRCH270J50

D 1816	(A,38,105) LED(2950MP)	CL-195SR-CD
	(A,38,105) LED(2990MP)	CL-195PG-CD
D 1817	(A,12,41) LED(2950MP)	CL-195SR-CD
	(A,12,41) LED(2990MP)	CL-195PG-CD
D 1818	(A,16,50) LED(2950MP)	CL-195SR-CD

	C 635	(B,146,55)	CKSRYB104K16
	C 640	(B,123,60)	CKSRYB104K16
	C 642	(B,107,103)	CKSRYB182K50
	C 643	(B,132,99)	CKSRYB182K50
C	C 646	(B,115,22)	CKSRYB103K50

	(A,16,50) LED(2990MP)	CL-195PG-CD
D 1819	(A,39,41) LED(2950MP)	CL-195SR-CD
	(A,39,41) LED(2990MP)	CL-195PG-CD
D 1820	(A,11,8) LED(2950MP)	CL-195SR-CD
	(A,11,8) LED(2990MP)	CL-195PG-CD

	C 652	(B,47,31)	CKSRYB103K50
	C 821	(B,35,10)	CKSRYB104K16
	C 825	(B,60,8)	CCSRCH221J50
	C 826	(B,80,14)	CCSRCH221J50
	C 827	(B,70,8)	CCSRCH221J50

D 1821	(A,11,22) LED(2950MP)	CL-195SR-CD
	(A,11,22) LED(2990MP)	CL-195PG-CD
D 1823	(A,26,56) LED(2950MP)	CL-195SR-CD
	(A,26,56) LED(2990MP)	CL-195PG-CD
D 1824	(A,35,31) LED(2950MP)	CL-195SR-CD

	C 828	(B,68,8)	CCSRCH221J50
	C 829	(B,62,8)	CCSRCH221J50
	C 830	(B,64,8)	CKSRYB104K16
	C 831	(B,66,8)	CCSRCH221J50
	C 901	(A,51,114) 3 300 μ F/16 V	CCH1732

	(A,35,31) LED(2990MP)	CL-195PG-CD
D 1825	(A,26,26) LED(2950MP)	CL-195SR-CD
	(A,26,26) LED(2990MP)	CL-195PG-CD
D 1826	(B,25,149) Diode	MALS068X
D 1827	(B,25,150) Diode	MALS068X

D	C 911	(A,57,62)	CEJQ100M16
	C 912	(A,47,66)	CEAT102M16
	C 913	(B,27,71)	CKSRYB104K16
	C 914	(A,51,62)	CEAT221M10
	C 915	(A,45,55)	CEJQ100M16

D 1828	(B,28,149) Diode	MALS068X
X 1801	(B,34,101) Ceramic Resonator 5 MHz	CSS1731
S 1827	(A,27,45) Rotary Encoder(SOURCE, VOLUME)	YSD5010
	LCD	CAW1930

	C 916	(A,54,52)	CEJQ100M16
	C 917	(B,27,77)	CKSRYB104K16
	C 991	(B,10,108)	CKSRYB473K25
	C 992	(A,11,97)	CEJQ101M10

RESISTORS

R 1801	(B,26,76)	RS1/16S222J
R 1802	(B,24,76)	RS1/16S222J
R 1803	(B,25,136) (2950MP)	RS1/4SA561J
	(B,25,136) (2990MP)	RS1/4SA471J
R 1804	(B,26,141) (2950MP)	RS1/4SA561J

	(B,26,141) (2990MP)	RS1/4SA471J
R 1805	(B,36,93) (2950MP)	RS1/4SA561J
	(B,36,93) (2990MP)	RS1/4SA471J
R 1806	(B,36,88) (2950MP)	RS1/4SA561J
	(B,36,88) (2990MP)	RS1/4SA471J

	IC 1801	(B,28,112) IC	PD6340A
	IC 1802	(A,18,160) Remote IC	GP1UX51RK
	D 1803	(A,6,147) LED(2950MP)	CL-195SR-CD
		(A,6,147) LED(2990MP)	CL-195PG-CD
	D 1804	(A,5,155) LED(2950MP)	CL-195SR-CD

R 1807	(B,21,17) (2950MP)	RS1/4SA561J
	(B,21,17) (2990MP)	RS1/4SA471J
R 1808	(B,18,14) (2950MP)	RS1/4SA681J
	(B,18,14) (2990MP)	RS1/4SA561J
R 1809	(B,25,145)	RS1/4SA821J

		(A,5,155) LED(2990MP)	CL-195PG-CD
F	D 1805	(A,38,147) LED(2950MP)	CL-195SR-CD
		(A,38,147) LED(2990MP)	CL-195PG-CD
	D 1806	(A,38,137) LED(2950MP)	CL-195SR-CD
		(A,38,137) LED(2990MP)	CL-195PG-CD

R 1816	(B,31,26) (2950MP)	RS1/4SA561J
	(B,31,26) (2990MP)	RS1/4SA471J
R 1831	(B,35,105)	RS1/16S0R0J

B**Unit Number :(2950MP,2990MP)****Unit Name : Keyboard Unit****MISCELLANEOUS**

	IC 1801	(B,28,112) IC	PD6340A
	IC 1802	(A,18,160) Remote IC	GP1UX51RK
	D 1803	(A,6,147) LED(2950MP)	CL-195SR-CD
		(A,6,147) LED(2990MP)	CL-195PG-CD
	D 1804	(A,5,155) LED(2950MP)	CL-195SR-CD

DEH-2950MP/XN/ES

5		6		7		8	
<u>Circuit Symbol and No.</u>		<u>Part No.</u>		<u>Circuit Symbol and No.</u>		<u>Part No.</u>	
R 1832	(B,22,54)	RS1/16S473J		R 240	(B,10,31)	RS1/16SS473J	
R 1833	(B,19,152)	RS1/16S2R2J		R 241	(B,9,32)	RS1/16SS103J	
				R 243	(A,35,69)	RS1/16S0R0J	A
R 1835	(B,15,149)	RS1/16S101J					
R 1836	(B,9,156)	RS1/16S103J		R 244	(A,20,52)	RS1/16SS473J	
R 1837	(B,21,146)	RS1/16S101J		R 255	(A,27,63)	RAB4CQ104J	
R 1838	(B,23,146)	RS1/16S101J		R 307	(A,34,19)	RS1/16SS183J	
				R 308	(A,38,20)	RS1/16SS183J	
				R 309	(A,35,21)	RS1/16SS183J	
<u>CAPACITORS</u>							
C 1801	(B,31,127)	CKSRYB105K10		R 310	(A,38,21)	RS1/16SS183J	
C 1802	(A,23,153)	CKSRYF104Z25		R 601	(B,28,38)	RS1/16SS0R0J	
C 1803	(B,17,159)	CKSYF106Z10		R 602	(B,27,41)	RS1/16SS0R0J	
C 1810	(B,22,149)	CKSRYB472K50		R 606	(B,23,41)	RS1/16SS0R0J	
C 1811	(B,22,150)	CKSRYB472K50		R 701	(B,16,35)	RS1/16SS221J	
				R 702	(A,23,55)	RS1/16SS221J	B
				<u>CAPACITORS</u>			
				C 106	(B,56,69)	CKSQYB475K6R3	
				C 201	(A,28,67)	CKSRYB104K16	
				C 202	(A,27,57)	CKSSYB104K10	
				C 204	(A,24,63)	CKSSYB103K16	
				C 205	(B,23,43)	CKSQYB475K6R3	
				C 206	(A,22,39)	CKSSYB104K10	
				C 207	(A,24,37)	CKSRYB104K16	
				C 209	(B,33,40)	CEVW220M6R3	C
				C 210	(B,29,42)	CKSSYB104K10	
				C 211	(A,27,34)	CKSSYB104K10	
				C 212	(B,29,32)	CKSRYB104K16	
				C 213	(A,44,37)	CKSSYB104K10	
				C 214	(A,28,33)	CKSSYB104K10	
				C 216	(A,50,51)	CKSSYB332K50	
				C 217	(A,46,51)	CKSSYB104K10	
				C 218	(A,49,51)	CKSSYB473K10	
				C 219	(A,45,53)	CKSSYB104K10	
				C 220	(A,46,53)	CKSSYB182K50	
				C 221	(A,44,53)	CKSSYB104K10	D
				C 222	(B,43,53)	CCSSCH560J50	
				C 223	(B,45,53)	CCSSCH4R0C50	
				C 224	(A,43,55)	CKSSYB104K10	
				C 226	(A,40,58)	CCSSCH680J50	
				C 227	(A,40,60)	CCSSCH470J50	
				C 228	(A,39,62)	CKSSYB103K16	
				C 229	(B,49,59)	CKSSYB104K10	
				C 236	(A,42,61)	CKSSYB104K10	
				C 239	(B,44,51)	CCSSCH220J50	
				C 240	(A,35,61)	CKSSYB104K10	
				C 250	(B,36,30)	CKSSYB102K50	E
				C 251	(B,33,29)	CKSSYB102K50	
				C 303	(A,35,19)	CKSSYB472K25	
				C 304	(A,34,21)	CKSSYB223K16	
				C 307	(B,25,9)	CKSRYB104K16	
				C 308	(B,10,27)	CKSRYB105K10	
				C 703	(B,11,37)	CCSSCH101J50	
				C 704	(B,8,36)	CKSSYB102K50	
				C 711	(A,25,26)	CKSSYB104K10	
				Miscellaneous Parts List			
							F
					Pickup Unit(P10.5)(Service)	CXX1942	
				M 1	Motor Unit(SPINDLE)	CXC7134	
				M 2	Motor Unit(LOADING/CARRIAGE)	CXC4026	

6. ADJUSTMENT

6.1 CD ADJUSTMENT

A

1) Cautions on adjustments

• In this product the single voltage (3.3 V) is used for the regulator. The reference voltage is the REFO1 (1.65 V) instead of the GND.

If you should mistakenly short the REFO1 with the GND during adjustment, accurate voltage will not be obtained, and the servo's misoperation will apply excessive shock to the pickup. To avoid such problems:

- a. Do not mix up the REFO1 with the GND when connecting the (-) probe of measuring instruments. Especially on an oscilloscope, avoid connecting the (-) probe for CH1 to the GND.
- b. In many cases, measuring instruments have the same potential as that for the (-) probe. Be sure to set the measuring instruments to the floating state.
- c. If you have mistakenly connected the REFO1 to the GND, turn off the regulator or the power immediately.

• Before mounting and removing filters or leads for adjustment, be sure to turn off the regulator.

• For stable circuit operation, keep the mechanism operating for about one minute or more after the regulator is turned on.

• In the test mode, any software protections will not work. Avoid applying any mechanical or electrical shock to the mechanism during adjustment.

• The RFI and RFO signals with a wide frequency range are easy to oscillate. When observing the signals, insert a resistor of 1k ohms in series.

• The load and eject operation is not guaranteed with the mechanism upside down. If the mechanism is blocked due to mistaken eject operation, reset the product or turn off and on the ACC to restore it.

2) Test mode

This mode is used to adjust the CD mechanism module.

- To enter the test mode.
While pressing the 4 and 6 keys at the same time, reset.
- To exit from the test mode.
Turn off the ACC and back up.

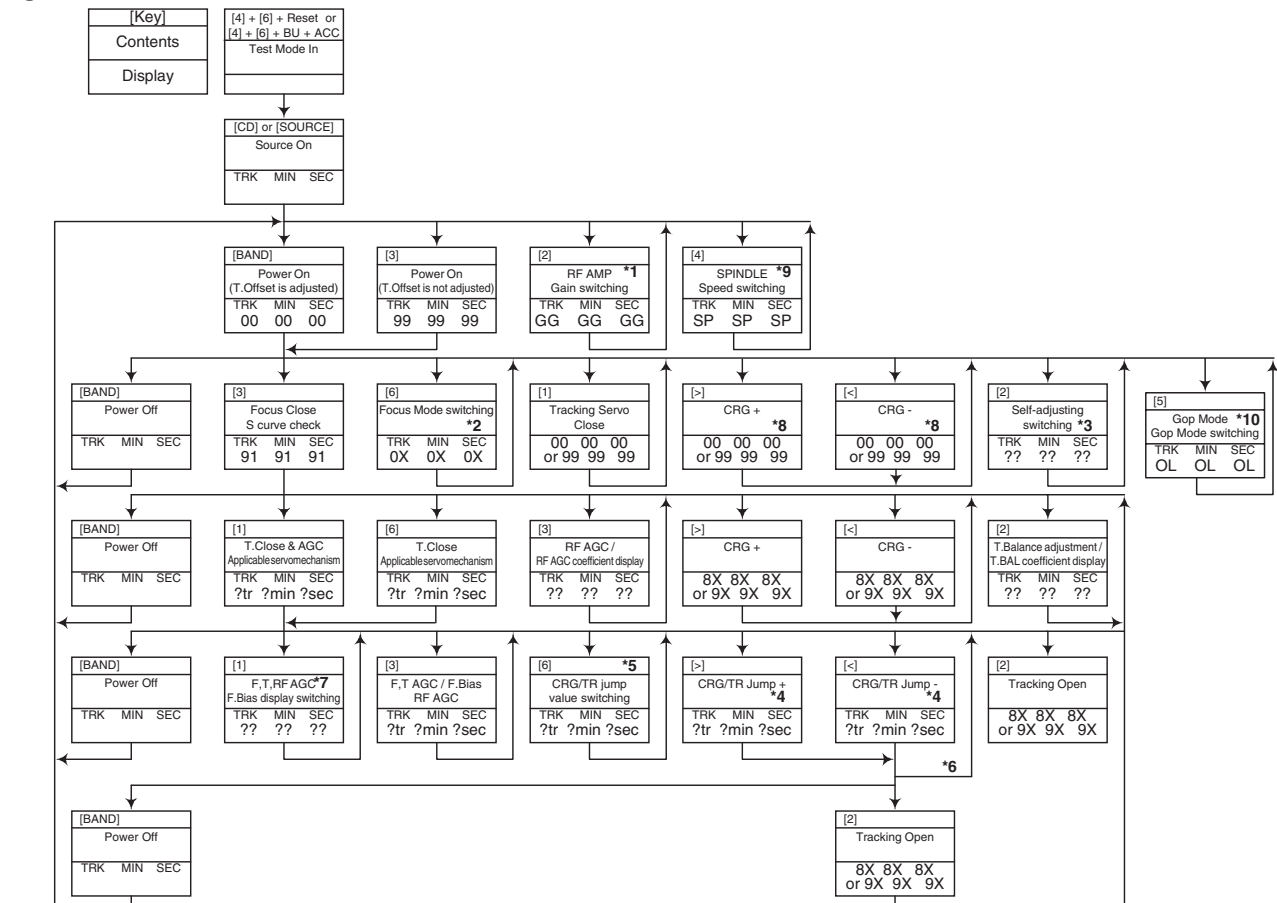
Notes:

- a. During ejection, do not press any other keys than the EJECT key until the loaded disc is ejected.
- b. If you have pressed the (→) key or (←) key during focus search, turn off the power immediately to protect the actuator from damage caused by the lens stuck.
- c. For the TR jump modes except 100TR, the track jump operation will continue even if the key is released.
- d. For the CRG move and 100TR jump modes, the tracking loop will be closed at the same time when the key is released.
- e. When the power is turned off and on, the jump mode is reset to the single TR (91), the RF amp gain is set to 0 dB, and the auto-adjustment values are reset to the default settings.

E

F

Flow Chart



*1) TYP → + 6 dB → + 12 dB
TRK MIN SEC → TRK₀₆MIN₀₆SEC₀₆ → TRK₁₂MIN₁₂SEC₁₂

*2) Focus Close → S Curve check setting → F EQ measurement setting
TRK₀₀MIN₀₀SEC₀₀ → TRK₀₁MIN₀₁SEC₀₁ → TRK₀₂MIN₀₂SEC₀₂
(TRK₉₉MIN₉₉SEC₉₉)

*3) F.Offset Display → RF.Offset → T.Offset Display → Switch to the order of the original display

*4) 1TR/4TR/10TR/32TR/100TR

*5) Single → 4TR → 10TR → 32TR → 100TR → CRG Move
9x(8x):91(81) 92(82) 93(83) 94(84) 95(85) 96(86)

*6) Only at the time of CRG move, 100TR jump

*7) TRK/MIN/SEC → F.AGC → T.AGC Gain → F.Bias → RF AGC

*8) CRG motor voltage = 2 [V]

*9) TYP (1X) → 2X → 1X
TRK MIN SEC → TRK₂₂MIN₂₂SEC₂₂ → TRK₁₁MIN₁₁SEC₁₁

*10) OFF(TYP) → FORCUS → TRACKING
TRK MIN SEC → TRK₇₀MIN₇₀SEC₇₀ → TRK₇₁MIN₇₁SEC₇₁

• As for the double speed (2x), audio output cannot be supported

- *1) • After the [Eject] key is pressed keys other than the [Eject] key should not be pressed, until disc ejection is complete.
- When the key [2] or [3] is pressed during the Focus Search, the power supply should be immediately turned off (otherwise the lens sticks to Wall, causing the actuator to be damaged).
- In the case of TR jump other than to 100TR, the function shall continue to be processed even if the TR jump key is released. As for the CRG Move and 100TR Jump, the mechanism shall be set to the Tracking Close mode when the key is released.
- When the power is turned on/off the jump mode is reset to the Single TR (91) while the gain of the RFAMP is reset to 0 dB. At the same time all the self-adjusting values shall return to the default setting.

[Key]	Operation Test Mode
[BAND]	Power On/Off
[>]	CRG + / TR Jump + (Direction of the external surface)
[<]	CRG - / TR Jump - (Direction of the internal surface)
[1]	T. CLS & AGC & Applicable servomechanism / AGC, AGC display setting
[2]	RF Gain switching / Offset adjustment display / T.Balance adjustment / T. Open
[3]	F. Close, S Curve / Rough Servo and RF AGC / F, T, RF AGC
[4]	SPDL 1X/2X switching As for the double speed(2x), audio output <u>cannot</u> be supported.
[5]	Error Rate measurement ON : ERR 30Counts Start BER display data[%]
[6]	F. Mode switching / Tracking Close / CRG•TR Jump Switching

6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT



• Note :

The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• Purpose :

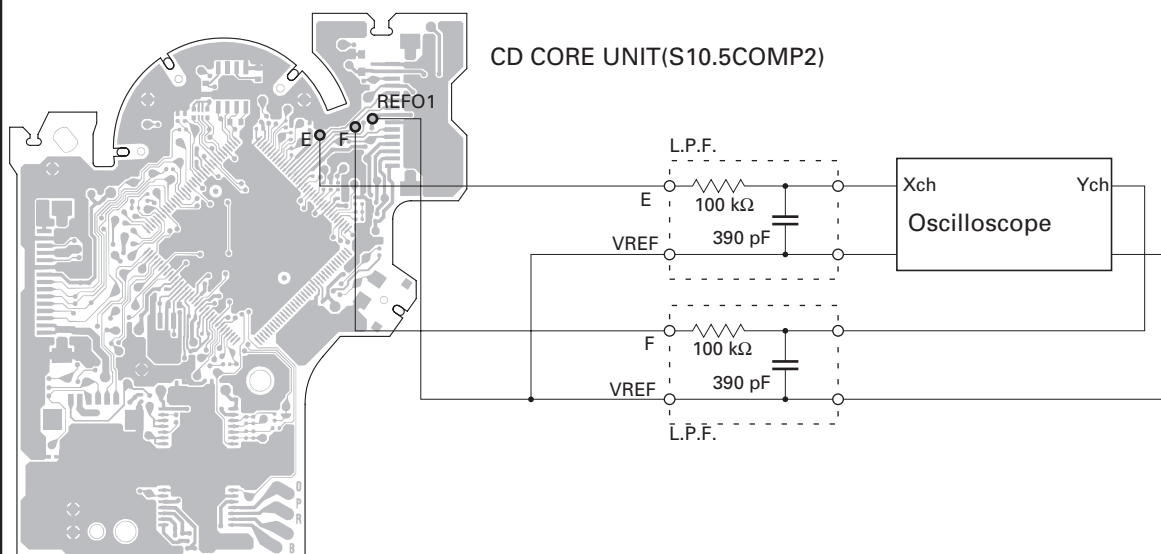
To check that the grating is within an acceptable range when the PU unit is changed.

• Symptoms of Mal-adjustment :

If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• Method :

- | | |
|-----------------------|----------------------------|
| • Measuring Equipment | • Oscilloscope, Two L.P.F. |
| • Measuring Points | • E, F, REFO1 |
| • Disc | • TCD-782 |
| • Mode | • TEST MODE |



• Checking Procedure

1. In test mode, load the disc and switch the 3 V regulator on.
2. Using the → and ← buttons, move the PU unit to the innermost track.
3. Press key 3 to close focus, the display should read "91". Press key 2 to implement the tracking balance adjustment the display should now read "81". Press key 3. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75°. Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

• Note

Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• Hint

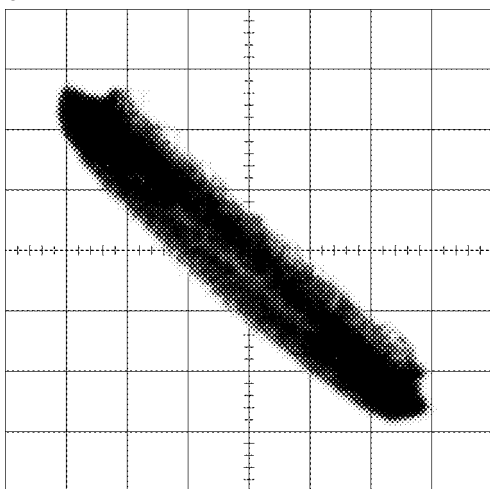
Reloading the disc changes the clamp position and may decrease the "wobble".

Grating waveform

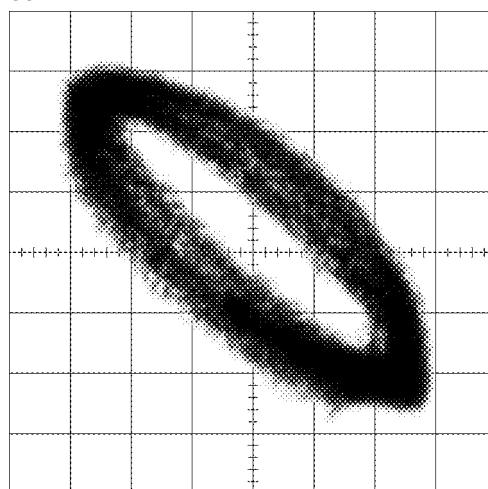
Ech → Xch 20 mV/div, AC

Fch → Ych 20 mV/div, AC

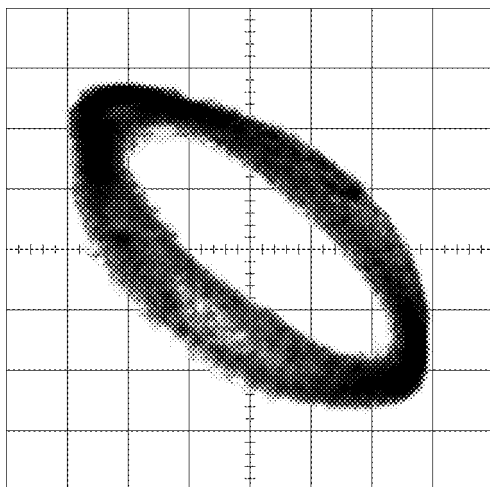
0°



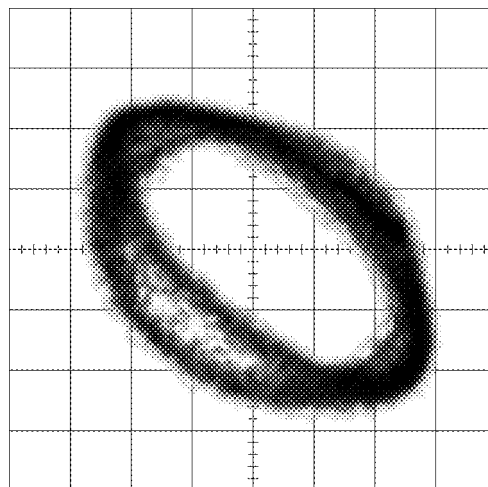
30°



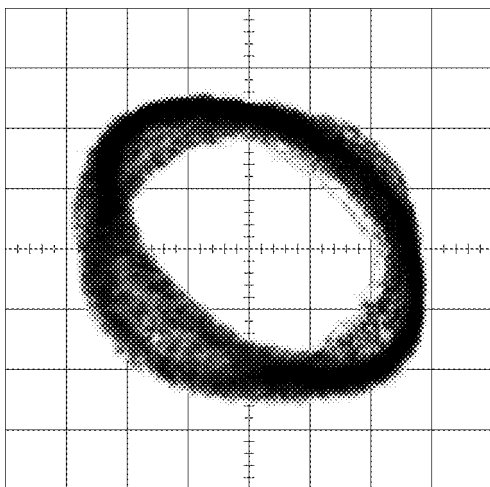
45°



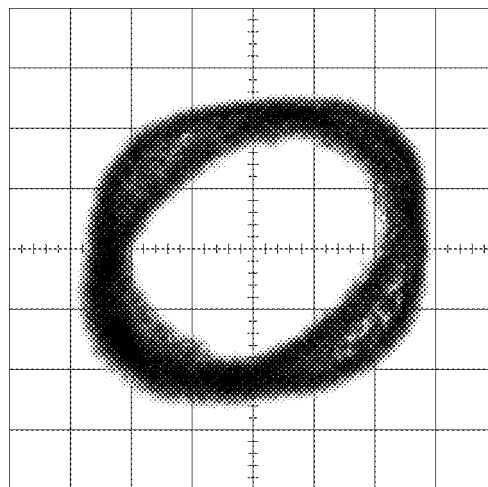
60°



75°



90°



Error Messages

A If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

(1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

2) Head unit display examples

B Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.

8-digit display	6-digit display	4-digit display
ERROR-xx	ERR-xx	E-xx

(2) Error Code List

Code	Class	Displayed error code	Description of the code and potential cause(s)
10	Electricity	Carriage Home NG SERVO LSI Com- munication Error	CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism. Communication error between microcomputer and SERVO LSI.
11	Electricity	Focus Servo NG	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE.
12	Electricity	Spindle Lock NG Subcode NG	Spindle not locked. Sub-code is strange (not readable). → Failure on spindle, stains or damages on disc, or excessive vibrations. A disc not containing CD-R data is found. Turned over disc are found, though rarely. CD signal error.
17	Electricity	Setup NG	AGC protection doesn't work. Focus can be easily lost. → Damages or stains on disc, or excessive vibrations on REWRITABLE.
30	Electricity	Search Time Out	Failed to reach target address. → CRG tracking error or damages on disc.
44	Electricity	ALL Skip	Skip setting for all track. (CD-R/RW)
50	Mechanism	CD On Mech Error	Mechanical error during CD ON. → Defective loading motor, mechanical lock and mechanical sensor.
A0	System	Power Supply NG	Power (VD) is ground faulted. → Failure on SW transistor or power supply (failure on connector).

E Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).
Unreadable TOC does not constitute an error. An intended operation continues in this case.
Upper digits of an error code are subdivided as shown below:
1x: Setup relevant errors, 3x: Search relevant errors, Ax: Other errors.

6.4 SYSTEM MICROCOMPUTER TEST PROGRAM



● PCL Output

In the normal operation mode (with the detachable panel installed, the ACC switched ON, the standby mode cancelled), shift the TESTIN IC601(Pin 112) terminal to H. The clock signal is output from the SCET IC601(Pin 43) terminal. The frequency of the clock signal is 1 Hz. The clock signal should be $1 \text{ Hz} \pm 0.000 \text{ 04 Hz}$. If the clock signal is out of the range, the X'tal (X601) should be replaced with new one.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

● Removing the Case (not shown)

1. Remove the Case.

● Removing the CD Mechanism Module (Fig.1)

1 Remove the four screws.

Disconnect the connector and then remove the CD Mechanism Module.

● Removing the Grille Assy (Fig.1)

2 Release the two latches and then remove the Grille Assy.

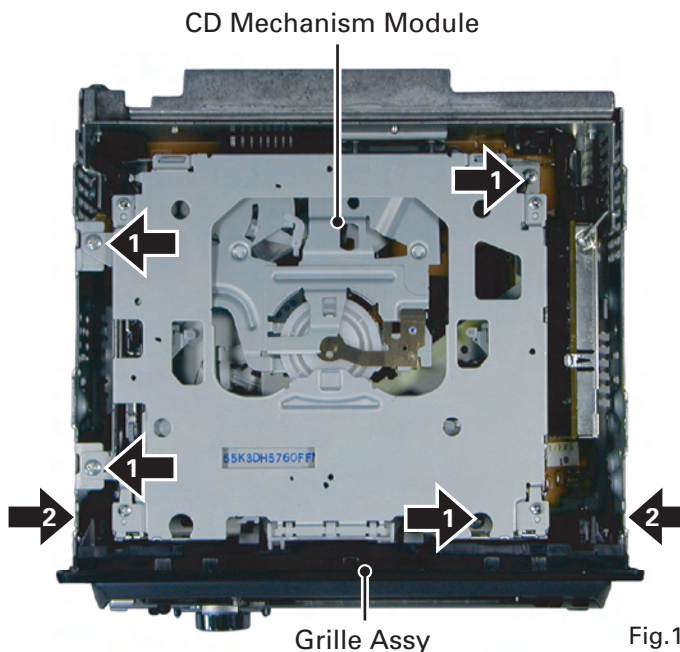


Fig.1

● Removing the Tuner Amp Unit (Fig.2)

1 Remove the two screws.

2 Remove the two screws.

3 Straighten the tabs at two locations indicated.

4 Remove the two screws and then remove the Tuner Amp Unit.

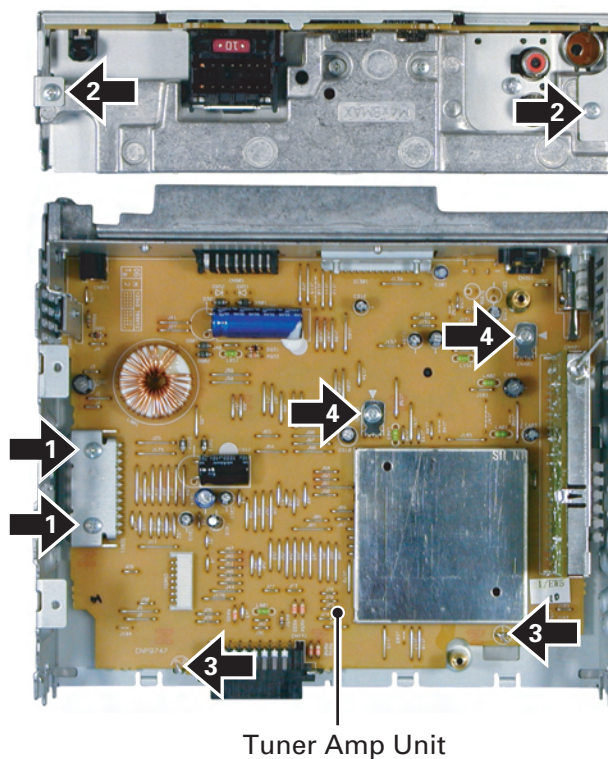
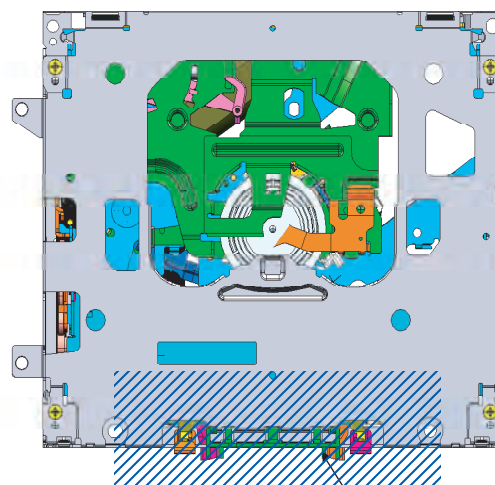


Fig.2

● How to hold the Mechanism Unit

1. Hold the Upper and Lower Frames.
2. Do not hold the front portion of the Upper Frame, because it is not very solid.

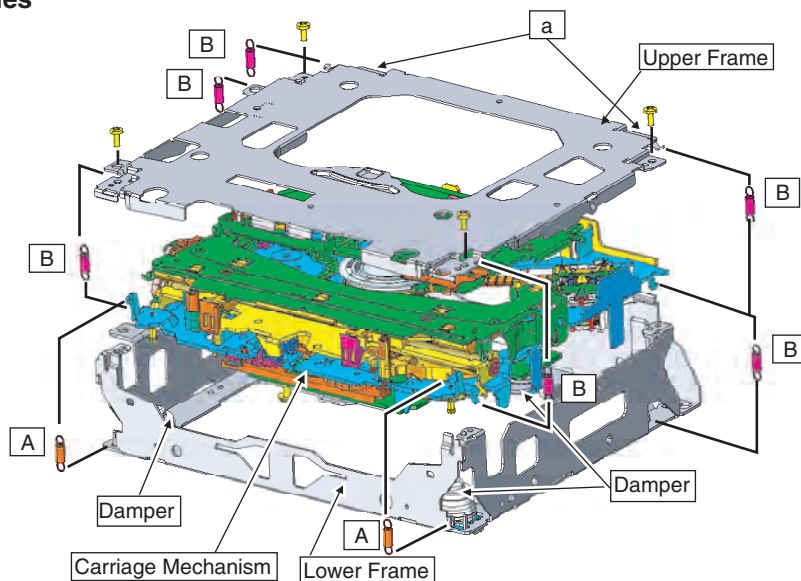


Do not squeeze this area.

● Removing the Upper and Lower Frames

1. With a disc inserted and clamped in the mechanism, remove the two Springs (A), the six Springs (B), and the four Screws.
2. Turn the Upper Frame using the part "a" as a pivot, and remove the Upper Frame.
3. While lifting the Carriage Mechanism, remove it from the three Dampers.

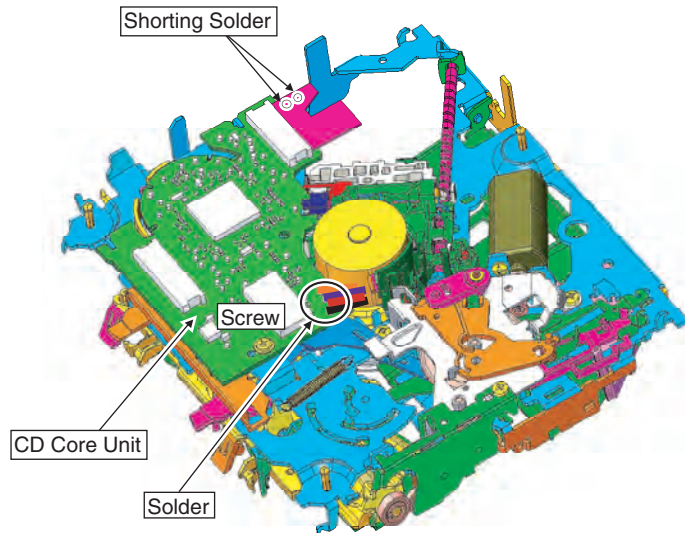
Caution: When assembling, be sure to apply some alcohol to the Dampers and assemble the mechanism in a clamped state.



● How to remove the CD Core Unit

1. Apply Shorting Solder to the flexible cable of the Pickup, and disconnect it from the connector.
2. Unsolder the four leads, and loosen the Screw.
3. Remove the CD Core Unit.

Caution: When assembling the CD Core Unit, assemble it with the SW in a clamped state so as not to damage it.

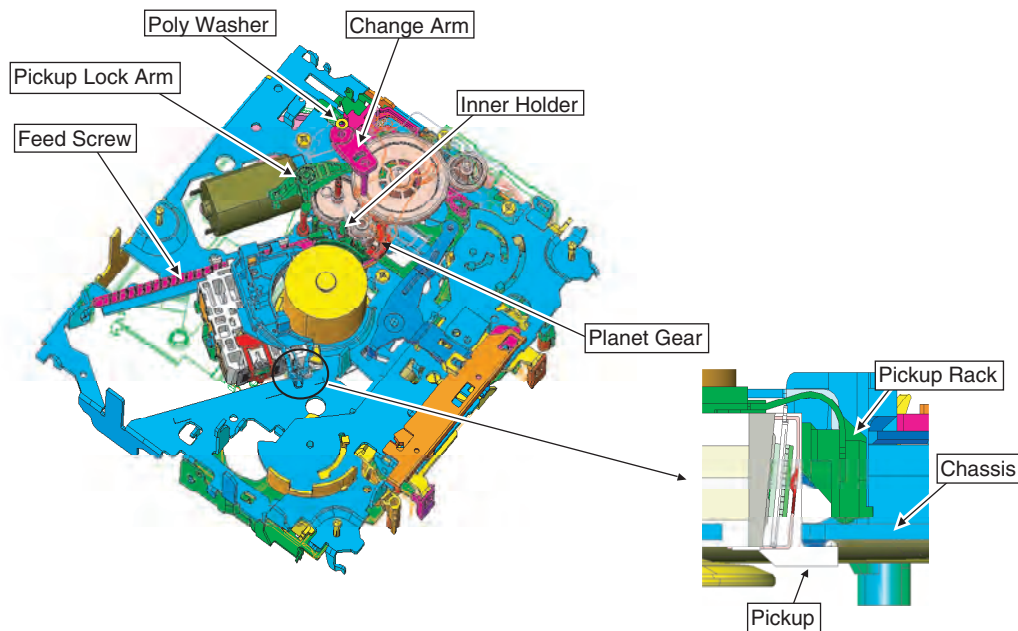


● How to remove the Pickup Unit

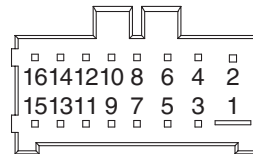
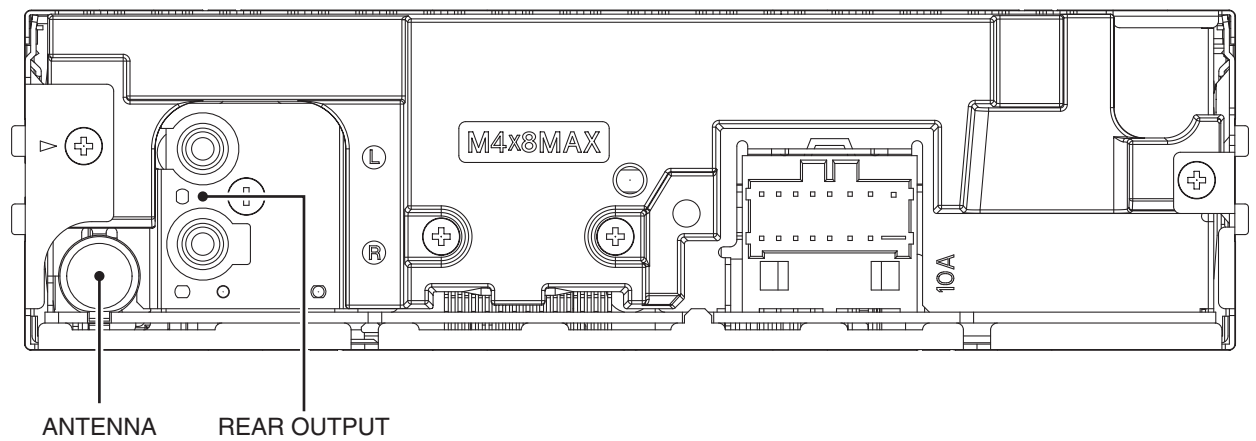
1. Make the system in the carriage mechanism mode, and have it clamped.
2. Remove the CD Core Unit and remove the leads from the Inner Holder.
3. Remove the Poly Washer, Change Arm, and Pickup Lock Arm.
4. While releasing from the hook of the Inner Holder, lift the end of the Feed Screw.

Caution: When assembling, move the Planet Gear to the load/eject position before setting the Feed Screw in the Inner Holder.

Assemble the sub unit side of the Pickup, taking the plate (Chassis) in-between. When treating the leads of the Load Carriage Motor Assy, do not make them loose over the Feed Screw.



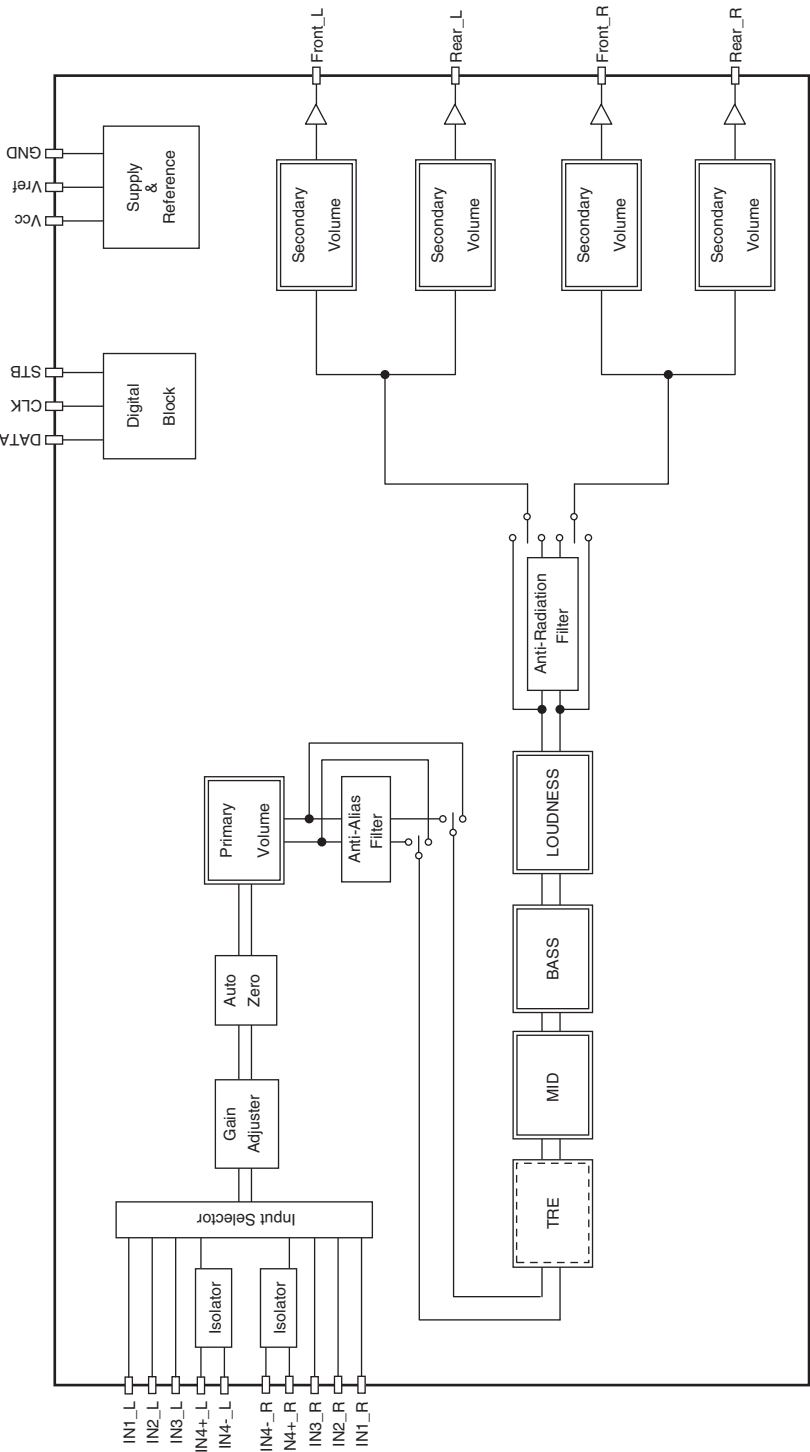
7.1.2 CONNECTOR FUNCTION DESCRIPTION



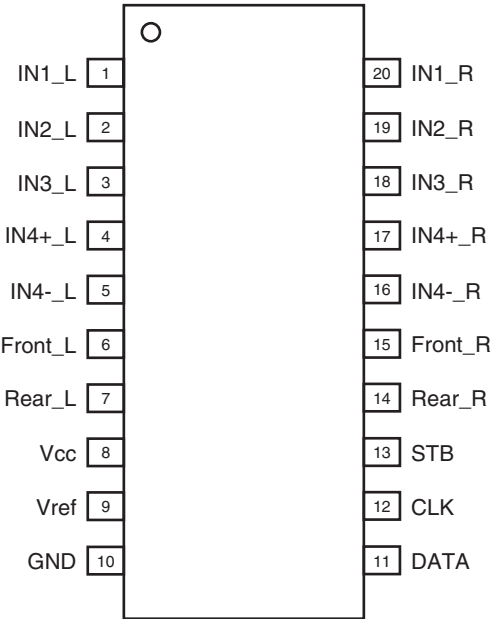
Pin No.		Pin No.	
1	B. UP	9	RL-
2	GND	10	FL-
3	ACC	11	RL+
4	NC	12	FL+
5	NC	13	RR-
6	B.REM	14	FR-
7	NC	15	RR+
8	NC	16	FR+

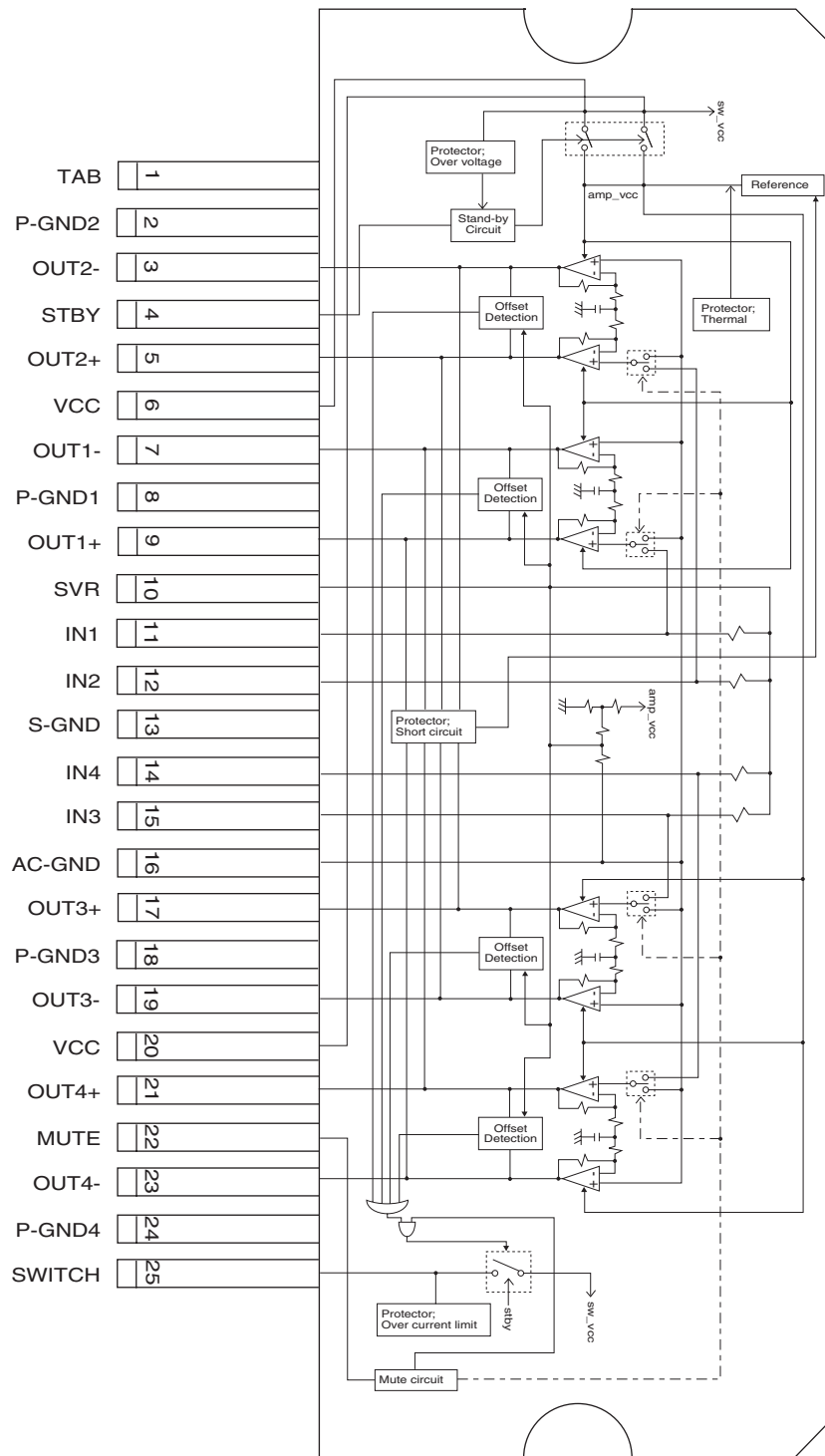
7.2 PARTS
7.2.1 IC

PML014A
● Block Diagram



● Pin Layout





● Pin Functions (PN5010A)

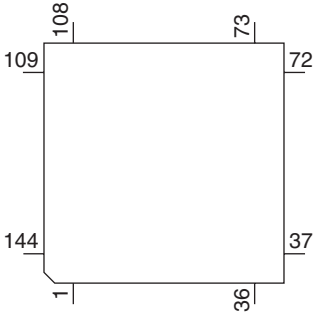
Pin No.	Pin Name	I/O	Format	Function and Operation
1	SWVDD	O	C	Power supply output for display microcomputer
2	ILMPW	O	C	Illumination power output
3-6	NC			Not used
7	FLMD0	I		Self-rewriting applied voltage input 0(self mode : H)
8	VDD			VDD
9	M_REGC			Regulator output capacitance stabilizing connection of masked ROM built-in item
10	F_REGC			Regulator output capacitance stabilizing connection of flash memory built-in item
11	VSS			GND
12	RESET	I		System reset input
13,14	NC			Not used
15	SYSPW	O	C	System power output
16	CDRESET	O	C	CD mechanism RESET output
17	BRST	O	C	P-BUS : Reset output
18	BRXEN	I/O	C	P-BUS : Reception enable input/output
19	BSRQ	I	C	P-BUS : Service request input
20	BSI/TSI	I	C	P-BUS : Serial data input/Test data input
21	BSO	O	C	P-BUS : Serial data output
22	BSCK/TSCK	I/O	C	P-BUS : Serial clock output/Test data clock synchronizer output
23	DPDT/SELFD0	O	N	Data output for display microcomputer/Data output for self-writing
24	KEYDT/SELFDI	I	C	Key data input from display microcomputer/Data input for self-writing
25-30	NC			Not used
31	EVSS			GHC for external
32	EVDD			VDD for external
33	SRC	I	C	Source key
34	DSSENS	I	C	Detach sense input
35	ASSENS	I	C	ACC sense input
36	BSSENS	I	C	Backup sense input
37	NC			Not used
38	BU_SIB	I	C	Data reception from backup circuit
39	BU_SOB	O	C	Data sending to backup circuit
40	BU_SCK	I/O	C	Communication clock with microcomputer for backup circuit
41	BU_A0	O	C	Backup circuit register control
42	BU_STB	O	C	Backup circuit register control
43	BU_HSFLG	I	C	Clock timer signal polling from backup circuit
44	MUTE	O	C	System mute output
45,46	BU_MODE1,0	I		VSS fixed(mode specification terminal for backup circuit test)
47	PWROFF	O		External power-off control
48	RESETOUT	O		Reset signal output for microcomputer
49	BU_REGC			Regulator output capacitance stabilizing connection for backup circuit(1.5 V)
50	BU_VDD	I		Power supply for backup circuit(3.3 V)
51,52	BU_X2,1	I		Input of oscillator circuit for clock timer(4.718 59 MHz)
53	BU_VSS	I		GND for backup circuit
54	PLL_GND	I		Terminal for TUNER only
55	PLL_VDD	I		Terminal for TUNER only
56	BU_RESET	I		Backup circuit reset input
57	DVDD3			Terminal for TUNER only
58	DGND2			Terminal for TUNER only
59	L_OUT			Terminal for TUNER only
60	R_OUT			Terminal for TUNER only
61	COMP			Terminal for TUNER only
62	SL			Terminal for TUNER only
63	AVDD2			Terminal for TUNER only
64	AGND2			Terminal for TUNER only
65	ASUB			Terminal for TUNER only

Pin No.	Pin Name	I/O	Format	Function and Operation
66	DACK			Terminal for TUNER only
67	LCH			Terminal for TUNER only
68	RCH			Terminal for TUNER only
69	WDCK			Terminal for TUNER only
70-74	TEST1-5			Terminal for TUNER only
75	AGND1			Terminal for TUNER only
76	AVDD1			Terminal for TUNER only
77	IF_INA			Terminal for TUNER only
78	IF_INB			Terminal for TUNER only
79	AD_REF			Terminal for TUNER only
80	OSCGND			Terminal for TUNER only
81	XIN			Terminal for TUNER only
82	XOUT			Terminal for TUNER only
83	OSCVDD			Terminal for TUNER only
84	DVDD1			Terminal for TUNER only
85	DREG			Terminal for TUNER only
86	SMC			Terminal for TUNER only
87	AMC			Terminal for TUNER only
88	TU_RESET			Terminal for TUNER only
89-92	DANT1-4			Terminal for TUNER only
93	DGND1			Terminal for TUNER only
94	DVDD2			Terminal for TUNER only
95	FREFR			Terminal for TUNER only
96	FREFA			Terminal for TUNER only
97	FREFB			Terminal for TUNER only
98	DSUB			Terminal for TUNER only
99	LOCK	I	C	PLL lock detection input
100	TUNDO	O	C	PLL serial data output
101	TUNCK	I/O	C	PLL serial clock input/output
102	CE	O	C	Tuner chip enable output
103	TUNDI	I	C	PLL serial data input
104-108	NC			Not used
109	CE2	O	C	Tuner chip enable output 2
110,111	ROT0,1	I	C	Rotary encoder pulse input 0, 1
112	TESTIN	I	C	Test program input
113	ROMDATA	I/O	C	ROM correction data input/output
114	ROMCK	O	C	ROM correction clock
115	ROMCS	O	C	ROM correction chip select
116	SELFOUT	O	C	Self programming operation control output
117,118	NC			Not used
119	BVSS			GND for port
120	BVDD			VDD for port
121	DVDDD4			VDD
122	DGND3			GND
123	VST	O	C	E.VOL strobe output
124	VDI	O	C	E.VOL data output
125	VCK	O	C	E.VOL clock output
126	VDCONT	O	C	CD mechanism power supply output
127	NC			Not used
128	FLMD1	I	C	Self-rewriting applied voltage input 1(fixed to L)
129	NC			Not used
130	KEYD	I	C	Wired remote control input
131,132	NC			Not used
133	P7AVSS			GND for port 7
134	P7AVDD			VDD for port 7
135	AVSS			A/D converter GND

Pin No.	Pin Name	I/O	Format	Function and Operation
136	SL	I		Signal level input
137-140	NC			Not used
141	MODELAD	I		Model select terminal
142	KEYAD	I		Wired remote control AD input
143	NC			Not used
144	AVREF0			A/D converter reference voltage

PN5010A

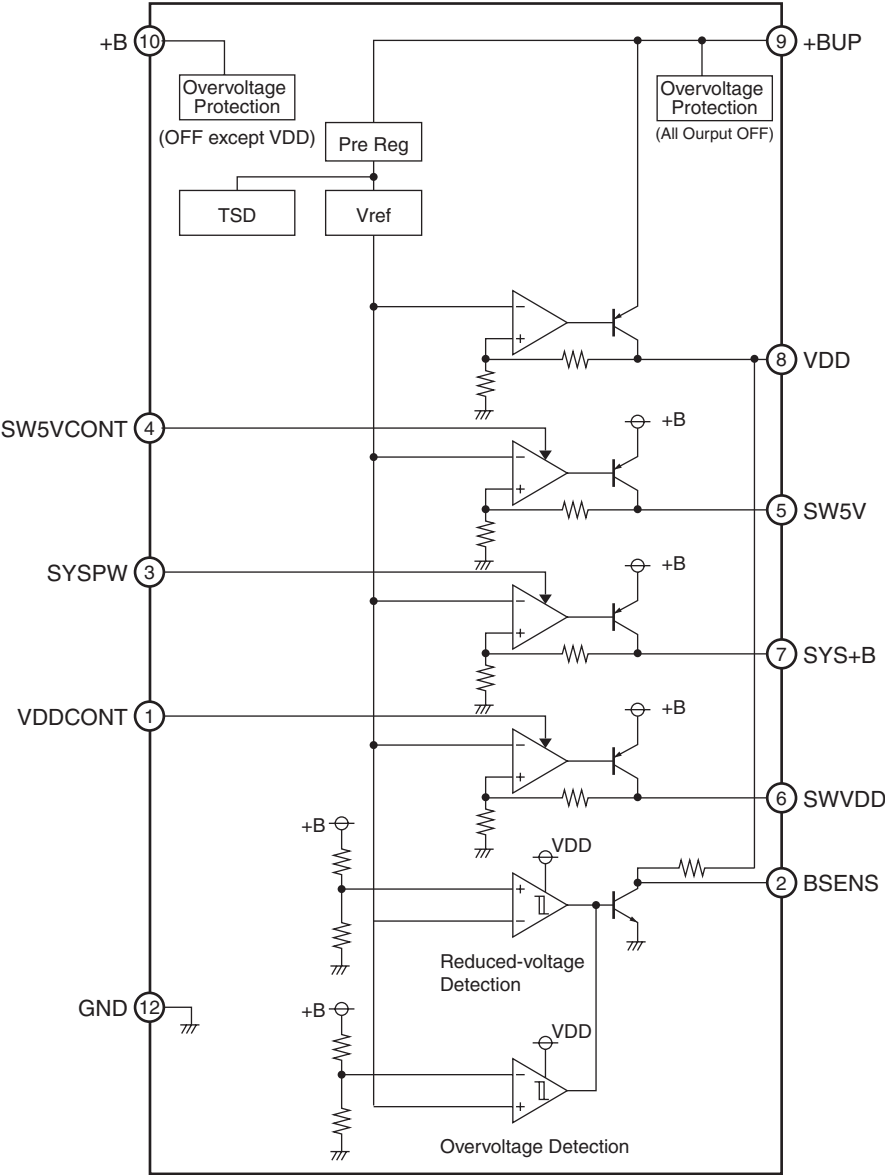
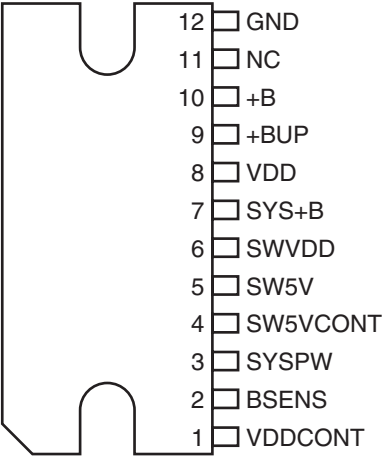
Format	Meaning
C	CMOS
N	Nch open drain



BA4918-V12

● Block Diagram

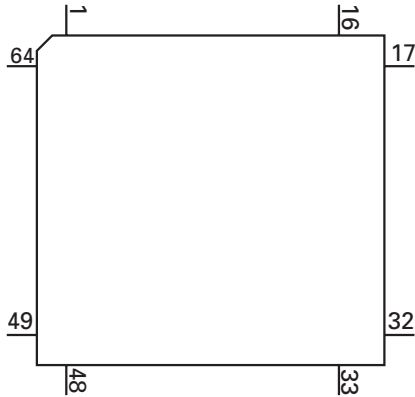
● Pin Layout



● Pin Functions(PD6340A)

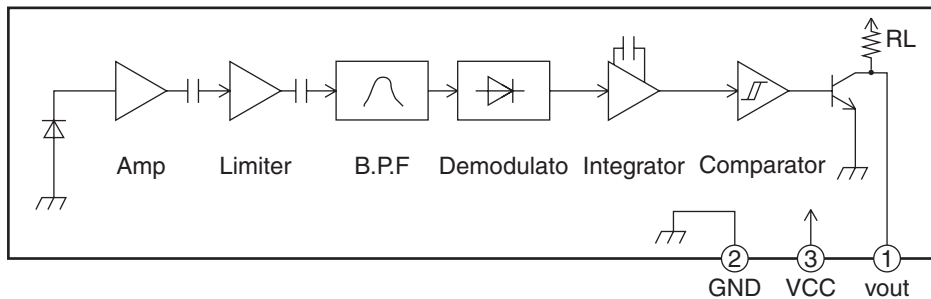
Pin No.	Pin Name	I/O	Function and Operation
1-5	SEG4-0	O	LCD segment output
6-9	COM3-0	O	LCD common output
10	VLCD		LCD drive power supply
11-14	KST3-0	O	Key strobe output
15,16	KDT0,1	I	Key data input (analogue input)
17	REW	I	Remote control reception input
18	DPDT	I	Display data input
19	NC		Not used
20	KYDT	O	Key data output
21	MODA		GND
22	X0		Crystal oscillator connection pin
23	X1		Crystal oscillator connection pin
24	VSS		GND
25,26	KDT2,3	I	Key data input
27	NC		Not used
28	KST4	O	Key strobe output
29-32	NC		Not used
33-55	SEG35-13	O	LCD segment output
56	VDD		Power supply
57-64	SEG12-5	O	LCD segment output

PD6340A

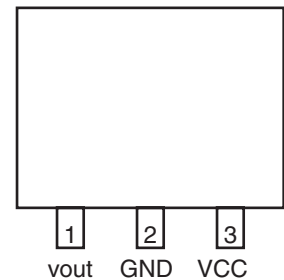


GP1UX51RK

● Block Diagram



● Pin Layout



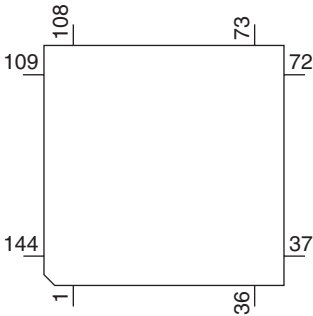
● Pin Functions (PE5547A)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	ROMDATA	I/O	/C	E2PROM : Data input/output
2	ROMCK	O	C	E2PROM : Clock output
3	ROMCS	O	C	E2PROM : Chip select output
4	NC			Not used
5	LOEJ	O	C	LOAD/EJECT direction switching output
6	DSCSNS	I		Disc sense input
7	8SNS	I		8 cm disc detection input
8	12SNS	I		12 cm disc detection input
9	HOME	I		HOME SW sense input
10	TEMP			Temperature information sense input
11	VDSENS			VD power supply short circuit/earth fault sense input
12	ADENA	O	C	A/D reference voltage supply control output
13	ADC.VDD			Power supply for A/D converter
14	ADC.GND			Ground for A/D converter
15	FLMD0	I		Flash writing control terminal
16	RESET	I		Internal microcomputer reset terminal
17	PULLDOWN	O	C	Pull-down
18	NC			Not used
19	TESTIN	I		Chip check, test program start-up input
20	NC			Not used
21	BSI	I	N	P-BUS : Serial data input
22	BSO	O	N	P-BUS : Serial data output
23	BSCK	I/O	N	P-BUS : Serial clock input/output
24	FTxD	O	N	Tx for flash rewriting
25	FRxD	I		Rx for flash rewriting
26	BRXEN	I/O	/C	P-BUS : Reception enable input/output
27	BSRQ	I/O	/C	P-BUS : Service request input
28	NC			Not used
29	FMODE	I		Flash self-rewriting mode start-up input
30	FLRQ	O	C	Flash self-rewriting reset voltage control
31	ROM	I		Open(EMPH)
32-36	NC			Not used
37	MCKRQ	O	N	CLOCK request
38	LRCKOK	O	N	LRCK reference enable
39	PUEN	O	C	Pickup hologram power supply control output
40	CD3VON	O	C	CD + 3.3 V power supply control output
41	CONT	O	C	Servo driver power supply control output
42	VDCONT	O	C	VD power supply control output
43	CLCONT	O	C	CRG/LOAD-EJECT switching control output
44	CDMUTE	O	C	CD mute control output
45	TEST	I		Test terminal
46	BRST	I		P-BUS : Communication reset input
47	REGS			Capacitor connection for standby
48	C.VDD			Power supply for internal microcomputer
49	C.GND			Ground for internal microcomputer
50	XTAL	I		Connected to the crystal oscillator
51	X.GND			Ground for the crystal oscillator
52	XTAL	O		Connected to the crystal oscillator
53	X.VDD			Power supply for the crystal oscillator
54	DA.VDD			Power supply for DAC
55	LOUT	O		Output of audio for the left channel
56	DA.GND			Ground for DAC
57	REGC			Connected to the capacitor for band gap
58	DA.GND			Ground for DAC
59	ROUT	O		Output of audio for the right channel

Pin No.	Pin Name	I/O	Format	Function and Operation
60	DA.VDD			Power supply for DAC
61	D.GND			Ground for digital circuits
62	D.VDD			Power supply for digital circuits
63	REG16			Capacitor connection for 1.6 V regulator
64	LRCK	O	C	3-wire audio LR clock output
65	SCKO	O	C	3-wire audio serial I/F clock output
66	DOUT	O	C	3-wire audio serial I/F data output
67-69	SVMON0-2	I/O	/C	Servo monitor input/output 0-2
70	SVMON3	I/O	/C	Servo monitor input/output 3(Ext MCK IN)
71	C33M	O	C	DRAM CLOCK
72	(RCS)	O	C	DRAM CS
73	(CKE)	O	C	DRAM CKE output
74	RAS	O	C	Output of DRAM RAS
75	CAS0(LDQM)	O	C	DRAM Lower CAS(LDQM) output
76	CAS1(UDQM)	O	C	DRAM Upper CAS(UDQM) output
77	WE	O	C	Output of DRAM WE
78	OE(CAS)	O	C	DRAM OE(CAS) output
79-94	RDB0-15	I/O	/C	Input/output of DRAM data0-15
95	IO.GND			Ground for I/O terminal
96	IO.VDD			Power supply for I/O terminal
97-108	RA0-11	O	C	Output of DRAM address0-11
109	FD	O	C	Output of focus drive PWM
110	TD	O	C	Output of tracking drive PWM
111	SD	O	C	Output of thread drive PWM
112	MD	O	C	Output of spindle drive PWM
113	EFM	O		Output of EFM signals
114	ASY	I		Asymmetry input
115	ATEST	O		Analog tests
116	A.VDD			Power supply for the analog system
117	A.GND			Ground for the analog system
118	RFI	I		Input of RF
119	AGCO	O		Output of RF
120	C3T			Connection to the capacitor for detecting 3T
121	AGCI	I		Input of AGC
122	RFO	O		Output of RF(AGC)
123,124	EQ2,1	I		Equalizer 2, 1
125	RF2-	I		Reversal input of RF2
126	RF-	I		Reversal input of RF
127	A.GND			Ground for the analog system
128	A.VDD			Power supply for the analog system
129	A	I		Input of A
130	B	I		Input of B
131	F	I		Input of F
132	E	I		Input of E
133	REFOUT	O		Output of reference voltage
134	FE-	I		Reversal input of FE
135	FEO	O		Output of FE
136	ADCIN	I		FE,TE A/D converter input
137	TE-	I		Reversal input of TE
138	TEO	O		Output of TE
139	TE2	O		TE2
140	TEC	I		TEC
141	LD	O		Output of LD
142	PD	I		Input of PD
143	AD.VDD			Power supply for servo ADC
144	AD.GND			Ground for servo ADC

PE5547A

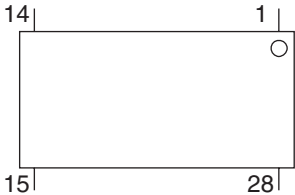
Format	Meaning
C	CMOS
N	Nch open drain



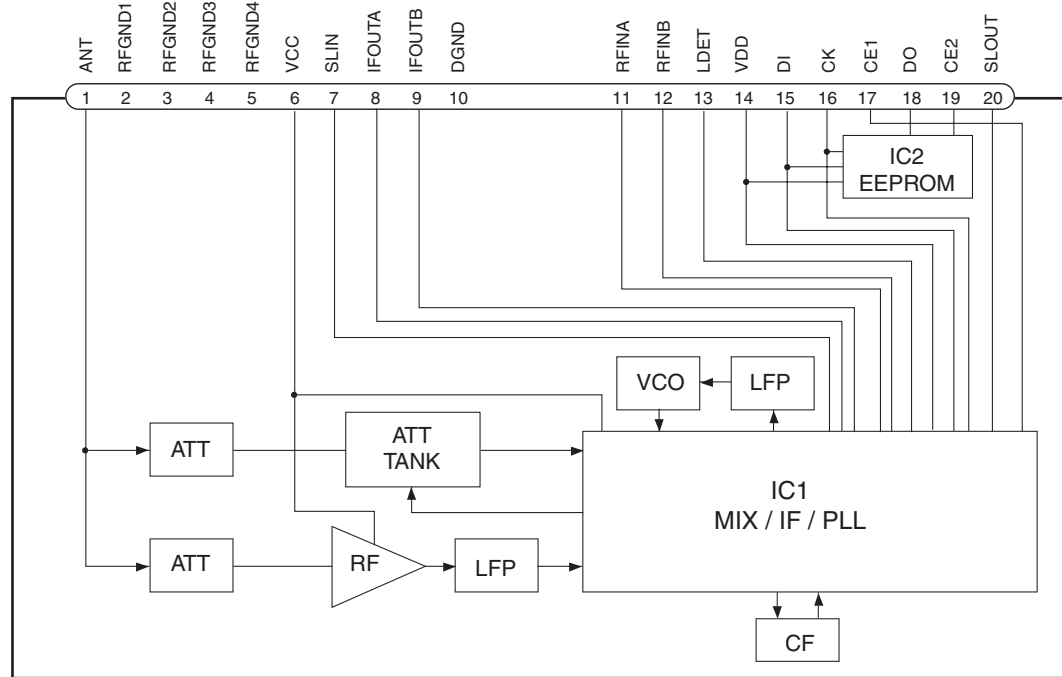
● Pin Functions(BA5839FP)

Pin No.	Pin Name	Function and Operation
1	VR	Input pin for reference voltage
2	OPIN2(+)	Input pin for non-inverting input for CH2 preamplifier
3	OPIN2(-)	Input pin for inverting input for CH2 preamplifier
4	OPOUT2	Output pin for CH2 preamplifier
5	OPIN1(+)	Input pin for non-inverting input for CH1 preamplifier
6	OPIN1(-)	Input pin for inverting input from CH1 preamplifier
7	OPOUT1	Output pin for CH1 preamplifier
8	GND	Ground pin
9	MUTE	Mute control pin
10	POWVCC1	Power supply pin for CH1, CH2, and CH3 at "Power" stage
11	VO1(-)	Driver CH1 - Negative output
12	VO1(+)	Driver CH2 - Positive output
13	VO2(-)	Driver CH2 - Negative output
14	VO2(+)	Driver CH2 - Positive output
15	VO3(+)	Driver CH2 - Positive output
16	VO3(-)	Driver CH2 - Negative output
17	VO4(+)	Driver CH4 - Positive output
18	VO4(-)	Driver CH4 - Negative output
19	POWVCC2	Power supply pin for CH4 at "Power" stage
20	GND	Ground pin
21	CNT	Control pin
22	LDIN	Loading input
23	OPOUTSL	Output pin for preamplifier for thread
24	OPINLSL	Input pin for preamplifier for thread
25	OPOUT3	CH3 preamplifier output pin
26	OPIN3(-)	Input pin for inverting input for CH3 preamplifier
27	OPIN3(+)	Input pin for non-inverting input for CH3 preamplifier
28	PREVCC	PreVcc

BA5839FP



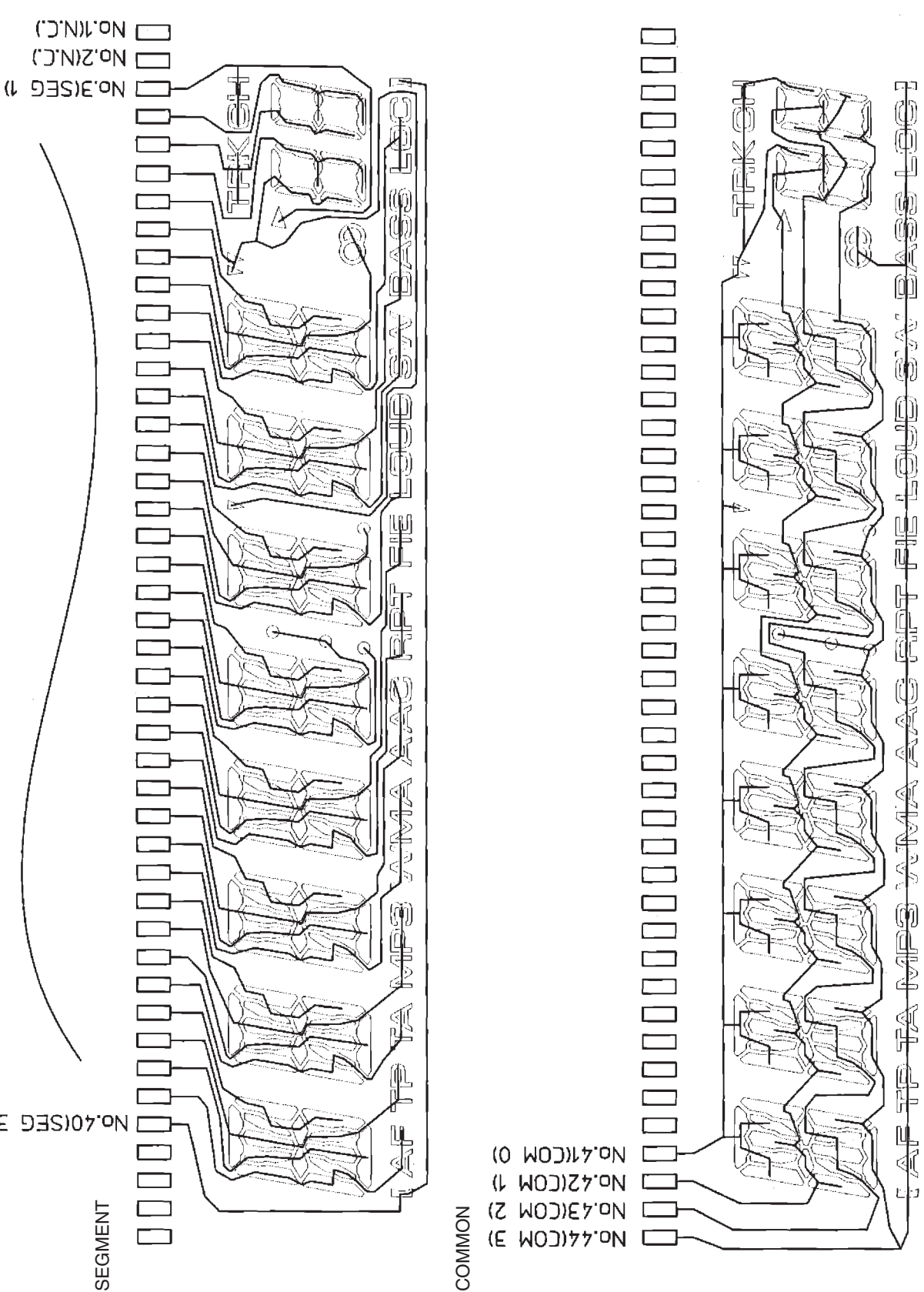
● FM/AM Tuner Unit



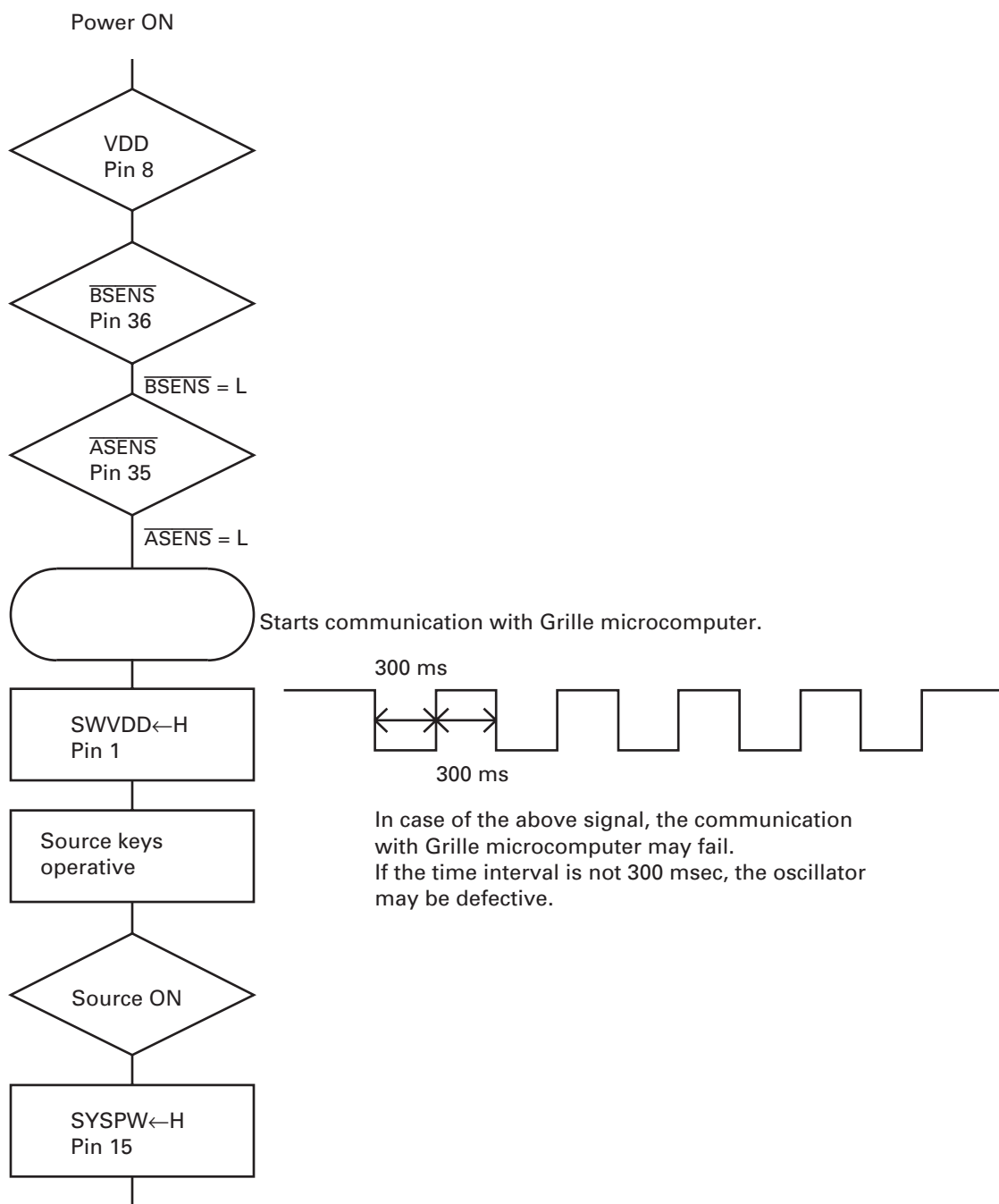
No.	Symbol	I/O	Explain	
1	ANT	I	Antenna Input	Antenna input. 75 Ω . Surge absorber is necessary. Series circuit including an inductor and a resistor is connected with RF ground for the countermeasure against the ham of power transmission line.
2	RFGND1		RF Ground	Ground of R.F. block
3	RFGND2		RF Ground	Ground of R.F. block
4	RFGND3		RF Ground	Ground of R.F. block
5	RFGND4		RF Ground	Ground of R.F. block
6	VCC		Power Supply	Power supply for Analog block. D.C 8.4 V \pm 0.3 V (performance isn't guaranteed besides 8.4 V)
7	SLIN	I	Signal Level Input	Input signal level from BE_IC
8	IFOUTA	O	IF Output	IF signal output (F.E.output)
9	IFOUTB	O	IF Output	IF signal output (F.E.output)
10	DGND		Digital Ground	Ground of Digital. block
11	REFINA	I	Reference Signal	Input reference signal for PLL part with FE_IC
12	REFINB	I	Reference Signal	Input reference signal for PLL part with FE_IC
13	LDET	O	Lock Detector	PLL lock detector output "High" active
14	VDD		Power Supply	Power supply for Digital block. D.C 3.3 V \pm 0.2 V
15	DI	I	Data In	Data input (not sending data in tuner reception operating in noise being output)
16	CK	I	CK	Clock data input(not sending data in tuner reception operating in noise being output)
17	CE1	I	Chip Enable-1	Chip enable for FE_IC "High" active
18	DO	O	Data Out	Data output
19	CE2	O	Chip Enable-2	Chip enable for EEPROM "Low" active. in power ON/OFF, please turn CE2 into "High" (= VDD).
20	SLOUT	O	Signal Level Output	Output of FM/AM signals level (D.C.)

7.2.2 DISPLAY

● LCD(CAW1930)

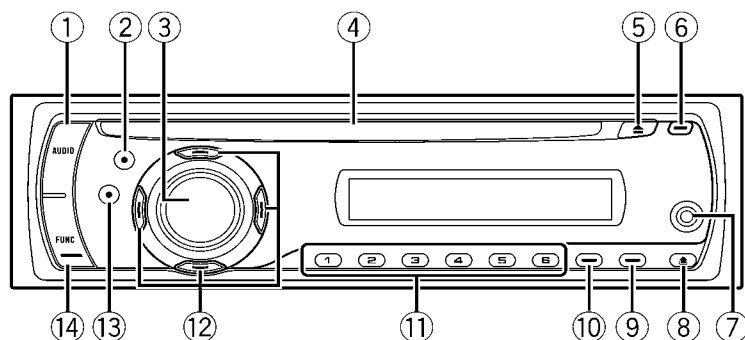


7.3 OPERATIONAL FLOW CHART



Completes power-on operation.(After that, proceed to each source operation.)

8. OPERATIONS



Head unit

① **AUDIO button**

Press to select various sound quality controls.

② **EQ button**

Press to select various equalizer curves.

③ **SOURCE button, VOLUME**

This unit is turned on by selecting a source. Press to cycle through all the available sources.

Press and hold to recall the initial setting menu when the sources are off.

Rotate it to increase or decrease the volume.

④ **Disc loading slot**

Insert a disc to play.

⑤ **EJECT button**

Press to eject a CD from your built-in CD player.

⑥ **CLOCK button**

Press to change to the clock display.

⑦ **AUX input jack (3.5 mm stereo jack)**

Use to connect an auxiliary equipment.

⑧ **DETACH button**

Press to remove the front panel from the head unit.

⑨ **DISPLAY button**

Press to select different displays.

⑩ **LOUD button**

Press to turn loudness on or off.

⑪ **1 to 6 buttons**

Press for preset tuning.

⑫ **▲/▼/◀/▶ buttons**

Press to perform manual seek tuning, fast forward, reverse and track search controls. Also used for controlling functions.

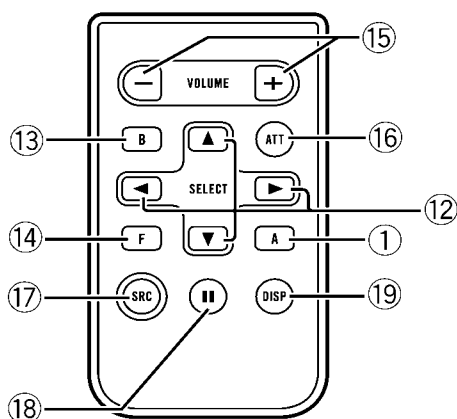
⑬ **BAND button**

Press to select among three FM bands and one AM band and to cancel the control mode of functions.

⑭ **FUNCTION button**

Press to recall the function menu when operating a source.

Remote control



Operation is the same as when using the buttons on the head unit. See the explanation of the head unit about the operation of each button with the exception of **ATT**, which is explained below.

⑮ **VOLUME button**

Press to increase or decrease the volume.

⑯ **ATT button**

Press to quickly lower the volume level, by about 90%. Press once more to return to the original volume level.

⑰ **SOURCE button**

Press to cycle through all the available sources. Press and hold to turn the source off.

⑱ **PAUSE button**

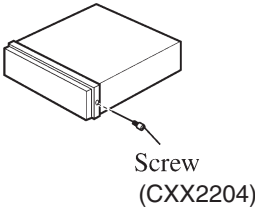
Press to turn pause on or off.

⑲ **DISPLAY button**

Not used.

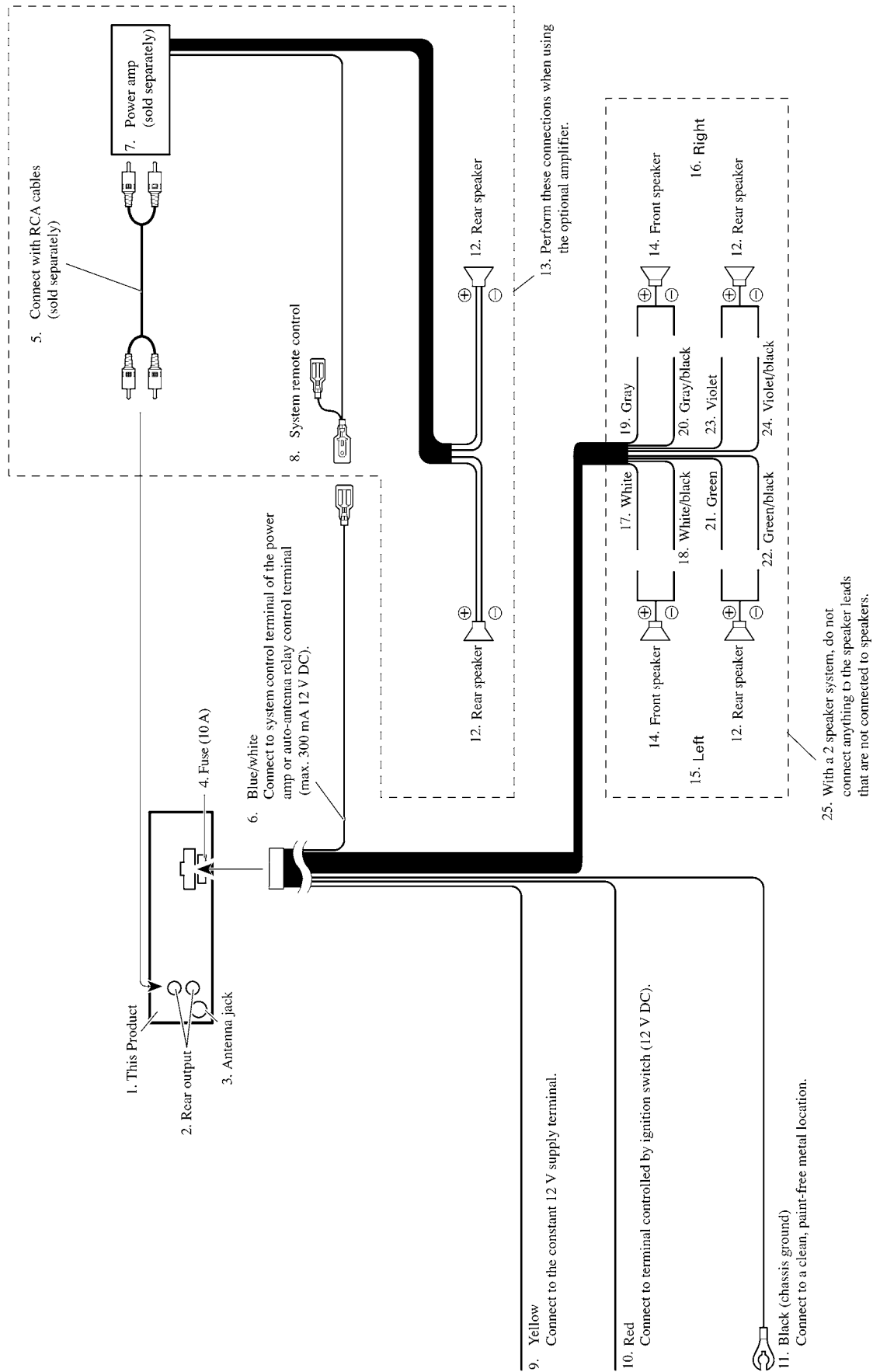
Fastening the front panel

If you do not plan to detach the front panel, the front panel can be fastened with supplied screw.



Screw
(CXX2204)

● Connection Diagram



● Jigs List

A

Name	Jig No.	Remarks
Test Disc	TCD-782	Checking the grating
L.P.F.		Checking the grating (Two pieces)

● Grease List

B

Name	Grease No.	Remarks
Grease	GEM1024	CD Mechanism Module
Grease	GEM1045	CD Mechanism Module



Before shipping out the product, be sure to clean the following portions by using the prescribed cleaning tools:

C

Portions to be cleaned	Cleaning tools
CD pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

D

E

F